Family Carangidae

Body variously elongate from slender and fusiform to oblong, deep or greatly elevated, variously to greatly compressed. Head compressed, occipital keel prominent. Snout conic to compressed. Eye sometimes with adipose lids. Mouth variable, usually moderate. Teeth small, often obsolete. Premaxillaries protractile. Maxillary with or without supplemental bone. Preopercle with 3 or more divergent spines in very young, obsolete or absent with age. Gill openings large, broad, gill membranes not joined,

free from isthmus. Gills 4, slit behind fourth. Gill rakers lanceolate. Pseudobranchiae large, absent with age. Branchiostegals 7. Vertebrae 13 or 14 + 10 to 14. Air bladder present, sometimes bilobate posteriorly. Œsophagus unarmed. Pyloric caeca usually numerous. Scales usually thin, cycloid, irregular, sometimes absent. Lateral line continuous, arched forward, hind section straight and sometimes armed with bony bucklers or scutes. Dorsals more or less separated, of somewhat feeble spinous portion forward, of slender or short spines, usually depressible in groove. Anal long, usually like and opposite soft dorsal,

with two stiff spines forward, in young more or less connected to fin or with other - and usually separated with age. Dorsal and anal spines disappear sometimes with age. Sometimes procumbent spine before dorsal. Caudal widely forked. Caudal peduncle slender, sometimes very narrow. Pectoral narrow or falcate. Ventral thoracic, well developed, with spine and five rays. Colors metallic, silvery or golden.

A large group of active swift fishes, usually living in schools and frequently swimming with the dorsal fin free above the water. Most are valued food fish and widely distributed.

The following unidentifiable carangids:

D. 5581. Bumburm Island (NW.), S. 83° W., 3.5 miles (lat. 4° 30' 25" N., long. 118° 41' 30" E.), vicinity of Darvel Bay, Borneo. In 21 fathoms. September 25, 1909. Length 20 to 23 mm. Two examples.

Two examples. Near Corregidor ~~Light~~ Island. February 7, 1909. Length 14 to 15 mm.

cremulate.

Scales 5 along above lateral line to caudal base, 75 along below; 55 to 60 scales in lateral line to caudal base; 8 or 9 above, 25 below; base of soft dorsal thickly scaled.

D. X, I 28 to 31, spines weak, third spine $\frac{2}{3}$ in head, $\frac{1}{3}$ higher than rays; D. II, 7, second spine strong, $\frac{3}{4}$ first ray or $\frac{2}{3}$ in head; caudal $1\frac{3}{4}$, rounded or cuneate; least depth of caudal peduncle $3\frac{1}{2}$; pectoral $1\frac{2}{3}$; ventral $1\frac{1}{3}$, first ray filamentous.

Deep gray, with blackish band running along center of each row of scales, faint in young. Head glossed with purple. Fins all deep black.

(Cuvier; Day.)

India, Malacca, East Indies, China.

Reported from the Philippines by Ebra.

According to Sauvage Corvina Fauveli

Analysis of Genera

a.' Two dorsals.

b.' Scomberoidinae. Scales rudimentary, lanceolate or linear, imbedded; premaxillaries not protractile; hind dorsal and anal rays partly detached or as several finlets.
Scomberoides.

b.[2] Body covered with small cycloid scales; premaxillaries protractile.

c.' Seriolinae. Anal much shorter than soft dorsal, its base not longer than abdomen.

d.' Dorsal and anal without finlets.

e.' Dorsal spines with persistent membranes, spines never free.
Seriola.

e.[2] Dorsal spines with membranes disappearing with age, spines becoming free.
Naucrates.

d.[2] Dorsal and anal each followed by finlet.
Elagatis.

c.[2] Anal long as soft dorsal, its base longer than abdomen.

f.' Caranginae. Maxillary with supplemental bone; lateral line arched anteriorly, usually armed posteriorly; pectoral long, falcate.

g.' Several detached finlets follow both dorsal and anal finlets. Megalaspis.

g.² Dorsal and anal each with single detached finlet posteriorly. Decapterus.

g.³ Dorsal and anal without finlets.

h.' Lateral line armed with deep scutes its entire extent. Trachurus.

h.² Lateral line with scutes only in posterior straight section on tail, sometimes small.

i.' Shoulder girdle with deep cross furrow at isthmus inside gill opening; above which fleshy projection.

j.' Straight section of lateral line begins below middle of spinous dorsal. Selar.

j.² Straight section of lateral line begins behind front of soft dorsal. Trachurops.

i.² Shoulder girdle normal, surface even; body deeper.

k. Abdomen without groove wholly receiving ventrals; ventrals shorter than head.

l.' Teeth in jaws in few or one series, unequal, not in villiform bands, outer above uniserial.

m.' Maxillary very narrow, width scarcely ¼ of eye. Alepes.

m.² Maxillary broader, width usually ½ or more of eye.

n.' Teeth in both jaws.

o.' Tongue and roof of mouth not white or greatly contrasted. Caranx.

o.² Tongue and roof of mouth white, greatly contrasted with rest of black inside mouth. Etrapis.

n.² No upper teeth. Selaroides.

l.² Teeth in jaws small or absent, form villiform bands if present; maxillary broad; body compressed; spinous dorsal weak.

f.' Gill rakers, below, less than 40.

g.' Teeth very small, obsolete or absent with age; palate toothless; dorsal spines low, weak; black alternating transverse lines and bands. Gnathanodon.

gf.² Teeth persistent, in bands; vomer and palatines with minute teeth; soft dorsal and anal lobes more or less extended.

r.' Body oblong; spinous dorsal persistent.
Carangoides.

r.² Body deep, greatly compressed, edges all trenchant; soft dorsal obsolete or absent with age.

+.' Soft dorsal and anal lobes very high, with long filaments, longer than body. Blepharis.

+.² Soft dorsal lobe moderately high, filaments not longer than body. Scyris.

+.³ Soft dorsal and anal lobes low, spinous fins absent with age. Hynnis.

f.² Gill rakers 50 below.
Elua.

ls.² Abdomen with deep groove receiving ventrals, which long as head.
Atropus.

f.² Trachinotinae. Maxillary without supplemental bone; anal like soft dorsal; pectoral short, not falcate.

t. Mouth moderate, muzzle above conic, forehead not prominent.

u. Lateral line median along side. Caesiomorus.

u.² Lateral line deeply deflected above abdomen, rising medially above anal. Hypacanthus.

t.² Mouth rather small, muzzle above swollen, obtuse, forehead prominent. Trachinotus.

a.² Parastromateinal. Few short dorsal spines 2 to 5 in young, concealed with age. Parastromateus.

Genus Scomberoides Lacépède

Scomberoides Lacépède, Hist. Nat. Poiss., vol. 3, p. 50, 1802. (Type Scomberoides commersonianus Lacépède = Scomber lysan Forskål, designated by Jordan and Evermann, Genera of Fishes, pt. 1, p. 60, 1917.)

Orcynus Rafinesque, Analyse de la Nature, p. 84, 1815. (Type Scomberoides commersonianus Lacépède, virtually, as Orcynus Rafinesque proposed to replace Scomberoides Lacépède.)

Chorinemus Cuvier, Hist. Nat. Poiss., vol. 8, p. 367, 1831 (Jan. 1832). (Type Scomberoides commersonianus Lacépède, designated by Jordan and Evermann, Genera of Fishes, pt. 1, p. 137, 1917.)

Rhaphiolepis Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1905, p. 59. (Type Chorisemus tol Cuvier, orthotypic.)

Eleria Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, 1905, p. 774. (Type Eleria philippina Jordan and Seale, monotypic.)

Call 30

Genus Crenidens Valenciennes

Crenidens Valenciennes, Hist. Nat. Poiss., vol. 6, 1830, p. 377. Type Crenidens forskalii Valenciennes, monotypic.

One or 2 rows of wide teeth in jaws, cutting edges crenulated; band of inner granular teeth, but no pointed lateral teeth; no molars. Palate toothless. Pseudobranchiae present, Branchiostegals 5. Air bladder simple. Pyloric coeca 3 to 5. Scales ctenoid, moderate, cover cheeks and opercles but not vertical fins. Dorsal single, with 10 to 12 spines, rays 10 or 11, depressible in groove. Anal spines 3, rays 9 to 11. Lower pectoral rays branched. Coloration dull.

Western Indian Ocean

Body - greatly compressed, ellipsoid to obid, profiles similarly curved. Head short, conic. Snout conic. Eye advanced in head, without adipose lids. Maxillary reaches below eye or beyond. Jaws equal. Teeth in young in villiform bands, with age from 1 to 2 series of large teeth; with age lower teeth form 2 series separated by groove. Villiform teeth on vomer, palatines and tongue. Gill rakers lanceolate. Scales rudimentary, linear, broadly lanceolate to rhomboid, form various at angles. Front of lateral line little curved or forms angle, without spines or scutes. Dorsal spines 6 or 7,

preceded by procumbent spine. Second dorsal with spine and 19 to 21 rays. Anal preceded by 2 strong separated spines, followed by spine and 18 or 19 rays. Third dorsal and anal rays separated, partly separated or penicillated. Pectoral short. Ventral depressible in short, median, abdominal groove.

A group of large shore fishes, bright silvery white, found in the tropical or subtropical Indo-Pacific. All have minute or small and usually but little differentiated scales, close set, little free, so the skin appears tough or leathery, hence the vernacular leather jacket.

The type designation of
Coryphaena scomberoides Lacépède
~~as the~~ for Scomberoides Lacépède,
is invalid as that species is
not included in the genus, as
given by Jordan, Tanaka, Snyder
(Journ. College Sci., Tokyo, vol.
33, art. 1, p. 126, 1913).

The following nomen nudum has been given by Laville-Kent:

Scomberoides maculosus (Laville-Kent)

Chorinemus maculosus Laville-Kent, Great Barrier Reef, p. 369, 1893. (type locality, Queensland).

Scomberoides maculosus McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 181, Sep. 10, 1929 (reference).

1 example. Cebu market. August 28, 1909. Length 42 mm.

84 examples. Cotabato, below mouth of Mindanao River, Mindanao. May 20, 1908.

Length 28 to 47 mm.

24083. Cotabato. May 20, 1908. Length 33 mm.

3 examples. Davao, Mindanao. May 16, 1908. Length 33 to 43 mm.

1 example. Gigantangan Island. March 5, 1909. Length 32 mm.

4930. Iloilo market. March 29, 1908.

Length 45 mm.

1 example. Mati, Pujada Bay, Mindanao. May 15, 1908. Length 27 mm.

Analysis of Species

a.' Scomberoides. Scales ovate or lanceolate.

b.' Maxillary reaches beyond eye; snout blunt, less than eye to subequal with age; scales ovate to broadly lanceolate; front of soft dorsal without black apically. lysan.

b.² Maxillary reaches ½ in eye or to hind edge of eye; snout pointed, equals eye to little longer with age; scales lanceolate, pointed.

c.' Body rather deep, subovate, body depth about 3½ or body depth much greater than head length; scales lanceolate; vertical fins dusky, without black blotch. tala.

c.² Body rather elongate, elliptical; body depth over 4; soft dorsal with black blotch anteriorly.

d.' Body deeper than head length;

scales rhombic, 2 to 2½ times longer than wide. tolooparah.

d.² Body deep as head length; scales lanceolate, pointed in exposed portions; usually dark blue band from snout to pectoral. sancti-petri.

a.² Rhaphiolepis. Scales needle shaped or thread like; maxillary reaches ½ in eye or to hind pupil edge. tol.

Scomberoides lysan (Forskål)

Scomber lysan Forskål, descript. Animal., pp. 12, 54, 1775 (type locality, Djedda; Lohaja, Red Sea). — Bonnaterre, Tabl. Ichth., p. 140, 1788 (copied). — Walbaum, Artedi Pisc., vol. 3, p. 216, 1792 (copied).

Gasterosteus lysan Gmelin, Syst. Nat. Linnaeus, pt. 1, p. 1324, 1789 (copied). — Walbaum, Artedi Pisc., vol. 3, p. 450, 1792 (copied).

Lichia lysan Rüppell, Atlas Reise nördl. Afrika, Fische, p. 91, 1828 (Red Sea; Djedda).

Body elongate, ovate, regularly elliptical, moderately compressed. Head short. Snout blunt. Eye large. Mouth small, horizontal. Maxillary barely reaching eye. Each jaw with single row of rather narrow obtusely lanceolate incisors, with conspicuous compressed roots posteriorly; behind narrow band of vomerine teeth; fine teeth on vomer, palatines, and tongue. Preopercle obsoletely serrate. Preorbital narrow, covering but little of maxillary. Gill rakers long. Pseudobranchiae present. Branchiostegals 7. Air bladder divided posteriorly into 2 horns, sometimes notched anteriorly. Vertebrae 25 or 26, of which 15 or 16 caudal. Pyloric coeca very numerous. Intestinal canal long. Scales small, ctenoid, thick, about 60 to 80 in lateral line. Space about

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Chorinemus lysan Bleeker, Nat. Tijds. Ned. Indie, vol. 21, p. 138, 1861 (Muntok, Banka).

Cuvier, Hist. Nat. Poiss., vol. 8, p. 387, 1831 (Pondicherry; Malabar; Amboina; Buru).

— Sauvage, Hist. Madagascar, Poiss., p. 518, 1891 (reference).

by body bands basally. Five broad vertical black body bands, narrowing below; first from top of head through eye and down cheek; second at front of spinous dorsal and before - down behind pectoral base; third from seventh to tenth dorsal spines to vent; fourth connects dorsal and anal rays; fifth narrow, cross caudal peduncle.

Length 390 mm. (Waite.)

West ern and South Australia, Tasmania.

Chorinemus lysan Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 2, p. 1100, 1849 (1850) (Pinang Sea; Malay Peninsula; Singapore). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 471, 1860 (North west Australia; Port Essington; China; Malay Peninsula). — Bleeker, Verslag. Kon. Akad. Wet. Amsterdam, vol. 12, p. 64, 1861 (Pinang). — Day, Fishes of Malabar, p. 92, 1865. — Kner, Reise Novara, Fische, p. 163, 1865 (Ceylon). — Playfair, Fishes of Zanzibar, p. 63, 1866 (Zanzibar). — Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 21, p. 448, 1871 (Red Sea). — Day, Fishes of India, pt. 2, p. 231, 1876. — Martens, Reise Preuss. Expéd. Ostas. Asien, vol. 1, p. 391, 1876 (Singapore).

— Klunzinger, Sitzs. Ber. Akad. Wiss. Wien, Math.- naturw. Kl., vol. 80, pt. 1, p. 378, 1879 (1880) (Cleveland Bay). — Károli, Termesz. Füzetek, Budapest, vol. 5, p. 161, 1881 (Singapore). — Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 4, p. 548, 1881 (Cape York; Torres Straits); vol. 7, pt. 3, p. 358, 1882, (New Guinea). — Klunzinger, Fische Roth. Meer., vol. 1, p. 105, 1884. — Meyer, Anal. ~~Hist. Nat.~~ Soc. Espan. Hist. Nat. Madrid, vol. 14, p. 25, 1885 (Macassar). — Gogorza, Anal. Soc. Espan. Hist. Nat. Madrid, vol. 17, p. 291, 1888 (Manila Bay). — Day, Fauna British India, Fishes, vol. 2, p. 175, 1889.

— Elera, Cat. Fauna Filipinas, vol. 1, pt. p. 513, 1895 (Cavite, Santa Cruz, Manila Bay, Luzon).

irregular small white blotches along
body of fin. Caudal dusky, tips
darkest.

— Gilchrist and Thompson, Ann. South African Mus., vol. 11, pt. 2, p. 40, 1911 (Natal).

— Beaufort, Bijd. Dierk. Amsterdam, vol. 19, p. 132, 1913 (Beo, Waigiu). — Weber, Siboga Exped., vol. 57, Fische, p. 390, 1913 (Saleyer).

— Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, p. 392, 1917 (reference).

— Hora, Mem. Asiatic Soc. Bengal, vol. 6, p. 484, 1924.

— Vinciguerra, Ann. Mus. Civ. Stor. Nat. Genova, ser. 3, vol. 10, p. 562, Aug. 23, 1926 (Sarawak). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 563, Oct. 1927 (Natal; Delagoa Bay; Chinde).

— Weber and Beaufort, Fishes Indo Austral. Archipel., vol. 6, p. 277, fig. 56 b (dentition), 1931 (Balikpapan; Stagen; Kota Baru; Makassar; Saleyer; Waigiu; Beira, East Africa).

Genus Istiophorus Lacépède

Sail Fishes

Istiophorus Lacépède, Hist. Nat. Poiss., vol. 3, (1802) p. 374, (Type Istiophorus gladifer Lacépède, monotypic.)

~~Xiphias~~

Histiophorus Cuvier Valenciennes, Hist. Nat. Poiss., vol. 8, (1831.2) p. 293, (Type Istiophorus gladifer Lacépède, monotypic.)

Rothistium Hermann, Observ. Zool., (1804) p. 304, (Type Guebucu, brasiliensibus marcgrave = Histiophorus americanus Valenciennes.)

~~1833~~

Skeponodus Hardo, Isis, vol. 26, col. 416, 419, 1833. (Type Skeponodus typus Hardo.)

Ganclurus Swainson, Nat. Hist. Animals, vol. 2, (1839.2) p. 239, (Type Ganclurus indicus Swainson, monotypic.)

Chromemus (Lichia) lysan Rüppell, Neue Wirbelth. Fische, p. 44, 1835 (Red Sea).

D. VII — I, 9, I. Fourth spine 2 1/8 in total head length; second ray 1 1/5; A. II, 8, I, second spine 1 7/8, fourth ray 1 2/3; caudal 1 1/4, convex; ~~although damaged apparently slightly emarginate?~~); least depth of caudal peduncle 2 3/5; pectoral 1 2/3; ventral 1 1/2.

Dark brown generally. Pectoral pale brown, other fins uniformly blackish brown.

India, Philippines. We have only seen the example reported by Fowler, redescribed above.

47491 A.N.S.P. Philippines. Length 55 mm. Type of Limia melas Fowler.

(μέλας, black; πτερον, fin; with reference to the black verticals and ventrals.)

Scomberoides lysan Bleeker, Nederl. Tijds. dierk., vol. 4, p. 132, 1873 (1874) (reference).

— Jordan, Bull. Bur. Fisher., vol. 25, p. 229, 1905 (1906) (reference).

— Seale, Philippine Journ. Sci., vol. 5, p. 272, 1910.

Family Kyphosidae (Cuv. 21

Body oblong or ovate, elevated. Mouth small. Premaxillaries moderately protractile. Incisor like teeth in front of each jaw more or less fixed; no molars; teeth usually present on vomer. Preorbital rather narrow, unsheaths maxillary. Opercle entire. Preopercle usually serrated. Gill opening large. Gill membranes separate, free from isthmus. Gill rakers moderate. Gills 4, slit behind fourth. Pseudobranchiae well developed. Branchiostegals 7. Vertebrae 24 to 28. Air bladder usually with 2 posterior horns. Pyloric coeca few or many. Intestinal canal elongate. Scales moderate or small, ctenoid, seldom cycloid. Soft dorsal, anal and caudal densely scaly. Ventral with axillary scale.

91 — ~~Leuciscoides~~ ~~lyson~~ Fowler and Bean, Proc. U. S. Nat. Mus., vol. 62, 1922, p. 19 (Philippines); — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 77, 1925, p. 213 (Malagoa Bay; Natal); vol. 79, 1927, p. 268 (Vigan, Philippines); Mem. Bishop Mus., vol. 10, p. 140, 1928 (compiled). — Wakiya, Ann. Carnegie Mus., vol. 15, p. 238, 1924 (Formosa).

— Mc Culloch, Austral. Mus. Mem., no. 5, pt. 2, p. 181, Sep. 10, 1929 (reference).

— Fowler, Mem. Bishop Mus., vol. 11, no. 6, p. 403, 1934 (reference); ~~xxxxxxx~~ Proc. Acad. Nat. Sci. Philadelphia, vol. 87, p. 140, 1935 (Bangkok; Sriracha; Patknam).

Depth 2 1/5; head 3. Snout 2 3/5 in head; eye 3 2/5, 1 1/4 in snout, 1 1/10 in interorbital; maxillary reaches 4/5 in eye, expansion 1 4/5 in eye, length 2 3/4 in head; teeth as translucent bony lamellae in each jaw; interorbital little elevated, convex.

Scales 6 2 in lateral line; 25 above, 60 below; small, finely ctenoid. Head above, snout, maxillary, mandible and 2 or 3 elongate areas above and behind eye naked, otherwise scaly.

D. $\overline{\text{X}}\text{I}$, 11, sixth spine 2 1/10 in head, second ray 2 1/4; A. $\overline{\text{III}}$, 11, third spine 2 3/4, first ray 2 1/4, caudal 1 1/4, very little emarginate behind; least depth of caudal peduncle 3; pectoral 1 1/2; ventral 1 1/2.

Yellowish or brownish. Fins dusky, without markings, except the crossed

Scombroides lysan Regan, Ann. Durban Mus., vol. 2, pt. 4, p. 198, Oct. 20, 1919 (Durban).

basal scale. Scales with 19 or 21 basal radiating striae; 6 7 to 7 2 apical denticles, with 6 or 7 transverse series of spines; ~~many~~ circuli very fine.

D. VII I, 9, I, fourth spine 2 3/4 in total head, fourth ray 1 4/5; A. II, 8, I, second spine 4, third ray 2; caudal 1 2/5, convex behind; least depth of caudal peduncle 2 2/3; pectoral 1 2/3; ventral 1 2/3.

Light brown, inclining to whitish below. Dorsals pale brown, whitish basally and soft fin with basal blackish ocellus large as eye margined with whitish at last rays. Caudal whitish basally, brown terminally. Other fins whitish. Iris whitish, gray above.

Philippines, Japan.

Scomber forsteri Schneider, Syst. Ichth. Bloch, p. 26, 1801 (type locality, Pacific Ocean).

Scomber maculatus (Forster) Schneider, Syst. Ichth. Bloch, p. 26, 1801 (name in synonymy). — Lichtenstein, descript. Animal., Forster, p. 195, 1844 (Tahiti).

Scomberoides commersonianus Lacépède, Hist. Nat. Poiss., vol. 3, p. 50, 1802 (type locality, Madagascar); vol. 2, pl. 20, fig. 3, 1800.

Scomberoides commersonianus Bleeker, Verslag. Kon. Akad. Wet. Amsterdam, ser. 2, vol. 2, p. 291, 1868 (Rio, Bintang), p. 300 (Waigiu).

Apogonichthys melanopterus, new name

Amia melas (non Bleeker 1848) Fowler, Proc. Acad. Nat. Sci. Phila., 1918, p. 17, fig. 8. Philippines.

Amia nigricans (non Lay) Fowler, Proc. Acad. Nat. Sci. Phila., 1927, p. 274 (type of Amia melas Fowler).

Chorinemus commersonii Bleeker, Verh. Batavia. Genoot. (Madura), vol. 22, p. 4, 1849 (Bangcallong; Tanjong).

Chorinemus commersonianus Bleeker, Nat. Tijds. Ned. Indie, vol. 1, p. 160, 1850 (Banka); vol. 3, p. 409 (Sampit, Borneo), p. 445 (Banka), p. 717 (Kang kadji, Banka), p. 740 (Macassar), 1852; Verh. Batavia. Genoot. (Makreel.), vol. 24, p. 44 (Samarang, Batavia, Tegal, Pasuruan), 1852; (Nal. Ichth. Bengal.), vol. 25, p. 42, 1853 (reference); Nat. Tijds. Ned. Indie, vol. 5, p. 428, 1853 (Sambas, Borneo); vol. 7, p. 312, 1854 (Anjer, Tjiringin); vol. 9, p. 394, 1855 (North Pasuruan); vol. 10, p. 347

Dorsuarius Lacépède, Hist. hat. Poiss., vol. 5, 1803, p. 482. Type Dorsuarius nigrescens (Commerson) Lacépède, monotypic.

Xyster Lacépède, Hist. hat. Poiss., vol. 5, 1803, p. 484. Type Xyster fuscus (Commerson) Lacépède, monotypic.

Xysterus Rafinesque, Analyse de la nature, 1815, p. 95. Type Xyster fuscus (Commerson) Lacépède. Xysterus Rafinesque proposed for Xyster Lacépède.

Xaleima Bowdich, Excursion to Madeira, 1825, p. 238, fig. 37. Type X. aleima aurata Bowdich, monotypic.

Apisthistius Gill, Proc. Acad. hat. Sci. Philadelphia, 1862, p. 245. Type Sciaena tahlmel Rüppell, monotypic.

1856 (Rio, Bintang); vol. 11, p. 419, 1856 (Muntok, Banka); Act. Soc. Sci. Ind. Neerl., vol. 1, no. 3, p. 9, 1856 (Macassar); vol. 3, no. 4, p. 3, 1857-58 (Macassar); vol. 5, no. 6, p. 3, 1858-59 (Palembang); vol. 5, no. 7, p. 2, 1858-59 (Sinkawang, Borneo).

in head; teeth 28 to 30 in jaws, uniserial, compressed, ends triangular; interorbital 2 1/3 to 2 2/3, broadly convex. Gill rakers 8 to 10+17 to 24, lanceolate, slender, 1 1/5 to 1 1/4 in gill filaments, which 1 1/2 to 1 3/5 in eye.

Scales 70 to 75 in lateral line to caudal base and 10 more on latter; tubular scales 50 to 55 in lateral line to caudal base and 9 or 10 more on latter; 11 to 13 scales above, 16 or 17 below, 66 to 70 predorsal. Scales with 6 to 17 basal radiating striae; 60 to 110 minute, slender apical denticles, with

Scomber madagascariensis Shaw, General Zool., vol. 5, pt. 2, p. 590, pl. 85, 1803 (on Scomberoides commersonnianus Lacépède). — Bennett, Life of Raffles, p. 689, 1830 (Sumatra).

Chorinemus exoletus Cuvier, Hist. Nat. Poiss., vol. 8, p. 379, 1831 (Jan. 1832) (type locality, Lohaja, Red Sea).

Lichia exoletus (Ehrenberg) Cuvier, Hist. Nat. Poiss., vol. 8, p. 379, 1831 (Jan. 1832) (name in synonymy).

Chorinemus aculeatus (not Bloch) Valenciennes, Hist. Nat. Poiss., vol. 8, p. 384, 1831 (Jan. 1832) (Pondicherry).

Chorinemus sarkhanii Cuvier, Hist. Nat. Poiss., vol. 8, p. 388, 1831 (Jan. 1832) (type locality, Malacca).

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? *Chorinemus delicatulus* Richardson, Ichth. China and Japan, p. 269, 1846 (type locality, Chinese Sea).

Scomberoides delicatulus Bleeker, Nederl. Tijds. dierk., vol. 4, p. 132, 1873 (1874) (reference).

? *Chorinemus leucophthalmus* Richardson, Ichth. China and Japan, p. 269, 1846 (type locality, Sea of China).

Scomberoides leucophthalmus Bleeker, Nederl. Tijds. dierk., vol. 4, p. 132, 1873 (1874) (reference).

elements; caudal fine.

D. IX, 20, I, third spine 2 1/5 in combined head and body to caudal base, fourth ray 1 1/4 in head; A. III, 16, I, second spine 3 1/2, third ray 1 1/4; caudal 1, emarginate; least depth of caudal peduncle 2 2/3; pectoral 1 3/4; ventral 2 7/8 in combined head and body to caudal base.

Pale brown above, whitish beneath, each row of scales with longitudinal silvery white band. Obsolete dusky transverse band from eye across cheek. Body with 5 broad transverse dusky bands, alternate in complete bar or band in each interspace.

Zanzibar, Delagoa Bay.

53124 A.N.S.P., Delagoa Bay. F. W. Bell Marley. Length 230 mm. 1923.

Chorinemus tol (not Cuvier) Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 2, 1849 (1850) [redacted] (Pinang Sea; Malay Peninsula; Singapore).

Scomberoides toloo-parah (not Rüppell) Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 180, 1903 (1905) (Hawaii).

[Scomberoides tala (not Cuvier) Fowler, Copeia, no. 58, p. 63, June 18, 1918 (Philippines).]

Lichia affinis (Kuhl and Van Hasselt) Bleeker, Verh. Batavia. Genoot., (makreel.), vol. 24, p. 44, 1852 (name in synonymy) (type locality, Batavia; Tegal; Samarang; Pasuruan).

dorsal fin continuous or divided, rather strong spines 10 to 15, rays 11 to 22. Anal spines 3, rays 10 to 19. Caudal lunate or forked.

Herbivorous shore fishes, feeding largely on marine algae. Most species valued as food fishes.

Depth 2 7/8 to 3 1/6; head 4 to 4 7/8, width 2 1/5 to 2 4/5. Snout 4 1/8 to 5 in head from snout tip; eye 3 7/8 to 4 1/5; greater than to subequal with snout, .021 1/8 in; interorbital, 1 to 1 1/4 in; maxillary reaches to half an eye diameter behind slightly beyond eye, expansion 2 to 3 1/4 in eye, length 1 1/2 to 1 2/3 in head from snout tip; interorbital 3 to 3 2/5, convexly elevated. Gill rakers 2+11, lanceolate.

Scales elongate, somewhat hastate, very small, cycloid. Scales with 40 circuli.

D. I, IV — I, 18, I, third spine 4 1/5 to 4 1/3 in total head length, first branched ray 1 1/4 to 1 1/2; A. II — I, I, 18, I, first branched

ray 1 1/3 to 1 2/5; least depth of caudal peduncle 4 1/3 to 4 7/8; pectoral 1 1/2 to 1 3/5, rays II, 18; ventral 1 4/5 to 1 7/8; caudal 3 1/2 to 3 3/4 in rest of fish, forked.

Gray brown above, silvery white below. Row of 14 or 15 brown spots along and close above lateral line, equidistant. Soft dorsal and anal pale buff, former dusky gray marginally. Caudal pale, edges dusky gray. Paired fins, iris and mandible whitish.

Red Sea, Arabia, Zanzibar, Chude, Portuguese East Africa, Natal, Madagascar, India, Ceylon, Andamans, Malaya, East Indies, Philippines, Siam, Formosa, Queensland, North Australia, Western Australia, Polynesia, Hawaii.

Known by its deep cheeks and long maxillary, which about $1\frac{3}{5}$ in the head.

6747. Manila market. April 14, 1909. Length 310 mm.

7634, 7640. Mouth of Imelampaya River and vicinity. December 26, 1908. Length 268 to 298 mm.

Cm 129

1252

Pseudupeneus luteus (Valenciennes)

Upeneus luteus Valenciennes, Hist. Nat. Poiss., vol. 7, 1831, p. 521. Mauritius. — Bleeker, Verhandel. Batavia. Genootsch. (Percoid.), vol. 22, 1849, p. 63 (Batavia). 1/m Thiollière, Faune Woodlarka, 1857, p. 152 (Woodlarka Island). 1/m Day, Fishes of India, pt. 1, 1875, p. 125, pl. 31, fig. 2. 1/m Macleay, Proc. Linn. Soc. New South Wales, vol. 7, 1882, p. 246 (New Guinea). 1/2m Meyer, Abh. Ver. Naturw. Hist. Nat. Madrid, vol. 14, 1885, p. 16 (Kordo, Mysore). 1/2m Day, Fauna British India, Fishes, vol. 2, 1889, p. 31, 1/m Herre and Montalban, Philippine Journ. Sci., vol. 36, No. 1, May 1928, p. 114, pl. 5, fig. 1 (Dumaguete and Zamboanga). — Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 231 (Tahiti); Proc. Acad. Nat. Sci. Philadelphia, 1929 (1930), p. 648 (Tahiti specimen).

A. N. V. P., one example. Delagoa Bay, Portuguese East Africa. 1922. H. W. Bell Marley. Length

A. N. V. P., one example. Natal. 1922. H. W. Bell Marley. Length

A. N. V. P., one example. Vigan, Philippines. 1923. Rev. Joseph Clemens. Purchased.

A. N. V. P., two examples. Philippine Islands. Commercial Museum of Philippines.

52730 to 52738 A.N.S.P. Orion.
April 28, 1923. Rev. Joseph Clemens.
Purchased. Length 93 to 133 mm.

52744 A.N.S.P. San Fernando, Philippines.
February 13, 1923. Rev. Joseph Clemens.
Purchased. Length 81 mm.

52745 to 52749 A.N.S.P. Vigan,
Luzon. February 6, 1923. Rev. Joseph Clemens.
Purchased.

52750 A.N.S.P. San Fernando Bay,
San Juan, Luzon. February 20, 1923. Length
82 mm.

52751 and 52752 A.N.S.P. Bangui,
Ilocos Sur, Luzon. January 29, 1923. Length
Rev. Joseph Clemens. Purchased.
88 to 91 mm.

Scomberoides tala (Cuvier)

Chorinemus tala Cuvier, Hist. Nat. Poiss., vol. 8, p. 377, 1831 (Jan., 1832) (type locality, Malabar); — Bleeker, Verhand. Batavia, Genoot. (Nat. Ichth. Bengal.), vol. 25, p. 44, 1853 (reference).

— Jerdon, Madras. Journ. Lit. Sci., p. 136, 1851.

— Günther, Cat. Fish. Brit. Mus., vol. 2, p. 473, 1860 (copied).

— Day, Fishes of Malabar, p. 93, 1865; Fishes of India, pt. 2, p. 231, 1876; Fauna British India, Fishes, vol. 2, p. 176, 1889.

across cheek to angle of preopercle edge, flank scaled, soft vertical fins all largely with fine scales).

D. XVI, 15 or 16 (X, I, 15, I on figure, fourth erect spine 3 in combined head and body to caudal base, first branched ray 1 2/3 in head); A. III, 14 or 15 (III, I, 13, I on figure, second spine 2 2/5, first branched ray 2 1/5; caudal 1 1/8, truncate; least depth of caudal peduncle 2 2/3; pectoral 1 1/5; ventral 1 1/8, first ray ending in short filament).

Brown or umber green above, below gray or silvery. Iris yellowish or rosy. Each row of body scales with dark longitudinal line, narrow above lateral line and along lower sides of body, largest on flanks; lines mostly following

— Weber, Siboga Exped., vol. 57, Fische, p. 391, 1913 (Macassar).

— Hora, Mem. Roy. Asiat. Soc. Bengal, vol. 6, p. 484, 1924 (Singgora).

— Weber and Beaufort, Fish. Indo. Austral. Archip., vol. 6, p. 281, 1931 (note).

Analysis of the species.

a.' Fowleria. Opercle with large round black blotch, sometimes ocellate.

b.' Body mottled with darker, often 10 to 11 transverse dark brown streaks; fins not bordered or marbled with black. auritus

b.² Body not mottled with darker, sometimes with 7 transverse dark bands; spinous dorsal tip and soft dorsal and caudal edges usually with broad black borders; soft dorsal and anal with longitudinal median black band. elliotti

a.² Apogonichthys. Operle without black blotch.

c.' No longitudinal dark bands.

d.' No dark caudal spot.

e.' Body with dark transverse bands.

f.' Body with 10 vertical dark bands; preopercle ridge entire, few teeth at angle or edge. striatus

Scomberoides tala Bleeker, Ned. Tijds. Dierk., vol. 4, p. 116, 1873 (1874) (China). — Smith and Seale, Proc. Biol. Soc. Washington, vol. 19, p. , 1906 (Mindanao). — Jordan and Richardson, Bull. Bur. Fisher., vol. 26, p. 13, 1906 (1907) (Cavite). — Seale and Bean, Proc. U. S. Nat. Mus., vol. 33, p. 241, 1907 (Zamboanga). — Fowler, Copeia, no. 58, p. 63, June 18, 1918 (Philippines, one example only); Proc. Acad. Nat. Sci. Phila-delphia, vol. 70, p. 14, 1918 (Philippines).

— Jordan and Starks, Ann. Carnegie Inst., vol. 11, p. 441, 1917 (Ceylon).

i
m Vinciguerra, Ann. mus. Civico Stor. nat. Genova, ser. 3, 812
vol. 10, 1926, p. 573 (Sarawak, Borneo).
i
m Tirant, Verroe Océanogr. Péch.
Indo Chine, 1929, note 6, p. 168
(Baria).

Depth 2 1/5; head 3 1/2. Snout 2 1/5 in head; eye 4 1/2 to 4 3/4, 2 1/4 in snout, 1 1/3 to 1 1/2 in interorbital; lower jaw shorter than upper; maxillary reaches 2/5 in eye, length 3 1/8 in head; outer row of teeth conspicuously larger than others; interorbital convex; preopercle feebly denticulate (figure shows only lower edge); eye 1 2/5 in suborbital depth.

Scales 60 to 68 along lateral line, 38 to 40 along below (figure shows 68 pores in lateral line of which last 5 apparently on caudal base; 8 scales above lateral line, 17 below, predorsal scales forward above front nostril; about 12 rows

1067

Elevia tala Jordan and Richardson, Bull. Bur. Fisher., vol. 26, p. 249, 1907 (1908) (Manila).—McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 181, Sep. 10, 1929 (reference).

Cover 179

811

Proteracanthus sarissophorus (Cantor)

Crenidens sarissophorus Cantor, Journ. Asiat. Soc. Bengal, vol. 18, p. 2, 1849, p. 1034, pl. 1, figs. 1-4. Pinang; Malay Peninsula.

Gvichla sarissophorus Bleeker, Natuurk. Tijdschr. Nederland. Indië, vol. 3, 1852, p. 64 (Singapore); Verslagen Kon. Akad. Wetensch. Amsterdam, vol. 12, 1861, p. 71 (Pinang).

Proteracanthus sarissophorus Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 427 (compiled). 1/3 Bleeker, Atlas Ichth. Ind. Néerland., vol. 7, 1873-76, pl. (41) 319, fig. 3; vol. 9, 1877, p. 47 (Singapore; Pinang; Malacca). 1/3 Kárdli, Termesz. Füzetek, Budapest, vol. 5, 1881, p. 157 (Matang). 1/3 Klunzinger, Mitteil. Naturh. Mus. Hamburg, vol. 21, 1903 (1904), p. 150 (Kuala Lumpur).

Chorinemus toloo Cuvier, Hist. Nat.
Poiss., vol. 8, p. 377, 1831 (toloo from Coromandel, Russell, Fishes of Coromandel, vol. 2, p. 29, pl. 137, 1803, type locality, Vizagapatam). — Bleeker, Nat. Tijds. Ned. Indie, vol. 3, p. 690, 1852 (Wahai); Verh. Batavia. Genoot. (Makreel.), vol. 24, p. 45, 1852 (Batavia); (Nal. Ichth. Bengal), vol. 25, p. 44, 1853 (reference); Nat. Tijds. Ned. Indie, vol. 7, p. 227, 1854 (Macassar); vol. 8, p. 345, 1855 (Tihoe, Sumatra); vol. 10, p. 360, 1856 (Ternate); vol. 11, p. 214, 1856 (Nias); Act. Soc. Sci. Ind. Neerl., vol. 1, No. 3, p. 4, 1856 (Manado); pp. 7, 9 (Macassar);

Body covered with small ctenoid scales. Cheeks, opercles and soft parts of vertical fins with very small scales.

Series of trenchant, tricuspid teeth in each jaw and broad band of villiform teeth close behind. Palate toothless. Preopercle crenulated. Scales 100 in lateral line, dorsal spines 13 or 14, rays 12. Anal spines 3, rays 11. Australia.

Cat 79 Melambaphes zebra (Richardson)

Crenidens zebra Richardson, Voyage Erebus and Terror, Ichth., 1846, p. 70. No locality. (King George's Sound.) 1 sp.

Castelnau, Record London Internat. Exhib., 1873, pt. 7, no. 5, p. 10 (Victoria).

Tephraeops zebra Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 432 (compiled).

vol. 1, no. 5, p. 6, 1856 (Amboina); vol. 3, no. 9, p. 3, 1857-58 (Trusstan), p. 6 (Siboqha); Nat. Tijds. Ned. Indie, vdl. 20, p. 219, 1859-60 (Tandjan); Act. Soc. Sci. Ind. Neerl. (Sumatra), vol. 8, p. 14, 1859 (Tandjong); Nat. Tijds. Ned. Indie, vol. 21, p. 138, 1860 (Muentok, Banka).

— Peters, Monatsb. Akad. Wiss. Berlin, 1876 (1877), p. 836 (Carteret Harbor, New Ireland). — Elera, Cat. Fauna Filipinas, vol. 1, p. 513, 1895 (Luzon; Manila).

— Günther, Cat. Fish. Brit. Mus., vol. 2, p. 473, 1860 (compiled). — Day, Fishes of India, pt. 2, p. 232, pl. 51A, fig. 3, 1876 (Andamans); Fishes of Malabar, p. 96, 1865. — Klunzinger, Fische Roth. Meer., vol. 1, p. 104, 1884 (diag. in key).

— Vinciguerra, Ann. Mus. Civ. Stor. Nat. Genova, ser. 3, vol. 10, p. 563, Aug. 23, 1926 (Sarawak).

Cope 30

Genus Melambaphes Günther

Melambaphes Günther, Ann. Mag. Nat. Hist., series 3, vol. 11, Feb. 1, 1863, p. 115. Type Glyphisodon nigroris (not Cuvier) Günther = Melambaphes guenthéri Gill, monotypic.

Girellichthys Klunzinger, Archiv Naturgesch., vol. 38, pt. 1, before July 1872, p. 22. Type Crenidens zebra Richardson, monotypic.

Neotephroeops Castelnau, Proc. Zool. Acclimatiz. Soc. Victoria, vol. 1, July 15, 1872, pp. 68, 248. Type Crenidens zebra Richardson, monotypic.

Neotephraeops Macleay, Proc. Linn. Soc. New South Wales, vol. 5, 1881, p. 410. Type Crenidens zebra Richardson, monotypic.

Scomberoides toloo Fowler, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, p. 506, 1925 (Padang); Journ. Bombay Nat. Hist. Soc., vol. 33, no. 1, p. 109, September 30, 1928 (Bombay; Padang materials).

— McCulloch, Austral. Mus. Mem., vol. no. 5, pt. 2, p. 181, Sep. 10, 1929 (reference).

scales; small patch of scales on upper part of opercle, rest naked.

D. XIV, 13, fourth spine 2 1/3 in head, fifth ray 1 4/5; A. III, 11, third spine 2 3/4, second spine 1 1/3; least depth of caudal peduncle 2 1/3; pectoral 1; ventral 1 1/3; caudal 3 in rest of body, emarginate behind.

Blackish, deeper on back and fins, more dilute toward belly. Very dark specks behind last dorsal spine tip. Eye gray. Length 296 mm.

(Richardson.)

West Australia.

Eleria philippina Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, p. 774, fig. 1, 1905 (type locality, Negros, Philippines).

Apogonichthys albomarginatus (Smith and Radcliffe)

Amia albomarginata Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 41, 1912, p. 438, pl. 35, fig. 2. Cavite, Luzon.

Scomberoides toloo-parah (not Rüppell) Jordan and Seale, Bull. Bur. Fisher., vol. 26, f. 13, 1906 (Cavite).

Scomberoides toloo-parah (not Rüppell) Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, f. 267, 1911 (Rangiroa, Paumotus).

Scomberoides lysan (not Forskål) Bean and Weed, Proc. U. S. Nat. Mus., vol. 42, f. 601, 1912 (Batavia).

65511 U.S.N.M. Cook Bay, Easter Island. Albatross Collection 1904-05. Length 283 mm. Type.

65512 U.S.N.M. Easter Island. Albatross Collection 1904-5. Length 265 mm.

6[5]5-13 U.S.N.M. Cook Bay, Easter Island. Albatross Collection 1904-5. Length 110 mm.

65514 U.S.N.M. La Perouse Bay, Easter Island. Albatross Collection 1904-5. December 17 1904. Length 20 to 29 mm. 26 examples. Dark cross bands variable, sometimes median bifurcate.

Depth 3 1/8 to 3 1/3; head 4 1/10 to 4 3/4, width 2 1/3 to 2 2/5. Snout 3 2/5 to 4 in head from snout tip; eye 4 to 4 1/2, 1 to 1 1/2 in snout, 1 1/8 to 1 1/3 in interorbital; maxillary reaches opposite hind eye edge or very slightly beyond, expansion 2 to 3 1/8 in eye, length 1 3/5 to 1 2/3 in head from snout tip; interorbital 3 1/3 to 3 1/2, convex, elevated. Gill rakers 3 + 9 to 13, lanceolate.

Scales close set, broadly lanceolate. Lateral line forms obtuse angle opposite front of spinous dorsal.

D. I, VII – I, 20, I, spines flattened, overlap, fifth 3 1/2 to 5 1/2 in total head length, second branched ray 1 2/5 to 1 7/8; A. II – I, 18, I, first branched ray 1 3/5 to 2;

least depth of caudal peduncle 4 to 4 4/5; pectoral 1 3/5 to 1 4/5, rays II, 15; ventral rays I, 5; fin 1 4/5 to 1 7/8 in total head length; caudal 1 to 1 1/4.

Gray above, sides and below silvery white. Along sides above about 6 gray blotches in lateral series. Iris whitish. Soft dorsal gray above, yellowish white basally. Pectoral axil dark gray. Ventral and anal grayish terminally.

1075

Red Sea, India, East Indies, Philippines, Queensland, South Australia.

~~South Carolina Stark-water Power~~

By Henry W. Fowler

South Carolina exhibits ~~is formed of~~ two contrasted regions. The northwestern or Piedmont, which is formed of the foothills of the Appalachian mountain. Along its southeastern edge its elevations are about 500 feet and reach higher levels northwestward to 1000 feet. This edge or boundary is a belt of sand hills extending from Augusta in Ga. northeastward to Columbia in S.C. the fall line, so that in the Piedmont a distinct upland fish fauna is found in marked contrast to that of the southeastern region or Coastal Plain.

5977. Cavite market. December 1, 1908. Length 92 mm.

8854. Daet beach. June 15, 1909. Length 422 mm.

6744 to 6747. Manila market. April 16, 1909. Length 275 to 424 mm.

8614. Matnog Bay. May 3, 1909. Length 245 mm.

8807, 12637, 21667. Santiago River, Pagapas Bay, Luzon. February 20, 1909. Length 127 & 156 mm.

5614. Tacloban market. July 25, 1909. Length 206 mm.

U. S. N. M., No. 51945. Negros, Philippines. Dr. B. Dean. Length 122 mm. Type of Eleria philippina.

above anal origin. Iris with reddish tinge. Barbels whitish. Fins all pale brownish. Apex of spinous dorsal grayish. Ventral and anal more whitish.

Amboina and Palmyra Islands.

Besides the type specimen known from the above described specimen from Palmyra Island, now in the Bishop Museum.

Bishop Museum.

One example. Palmyra Island.

August 20, 1924.

Length 232 mms.

U. S. N. M., No. 55990. Mindanao. Bureau of Fisheries (4229). Length 300.? mm. Eye 1/4 in snout.

U. S. N. M., No. 56339. Cavite. Dr. George A. Lung. Length 312 mm. Eye 1/4 in snout.

U. S. N. M., No. 66018. Rangiroa, Paumotus. Albatross Collection. 1900. Length 98 to 150 mm., 2 examples, smaller largely skeletal. Depth 3 1/3 to 3 2/5. Cf. Scomberoides toloo-parah.

U. S. N. M., No. 72616. Java. Bryant and Palmer. Two examples, 185 to 190 mm. Cf. Scomberoides lysan.

U. S. N. M., No. 72617. Batavia. Bryant and Palmer. April 2, 1909. Length 132 mm. Cf. Scomberoides lysan.

U. S. N. M., No. 72618. Batavia. Bryant and Palmer. April 2, 1909. Length 128 mm. Cf. Scomberoides lysan.

49334 and 49335 A.N.S.P. Philippines.
Commercial Museum of Philadelphia.

52761 A.N.S.P. Orion, Luzon. May 11,
1923. Rev. Joseph Clemens. Purchased.
Length 128 mm.

1078

U. S. N. M., No. 76619. Palaboean Ratoe, Wynkoops Bay, Java. October 1, 1909. Bryant and Palmer. Length 133 mm.

A Scomberoides lysan.

reinhardti 392
spinosus 391
tenuiculum 392
myersi, Amblygobius 444
Myliobatidae 386
mylops, Trachinocephalus 391
Myrichthys colubrinus 388
maculosus 388
mystax, Thressodes 387
Myxus elongatus 399
leuciscus 399
Myripristis adustus 396
bleekeri 396
carneus 396
hexagonus 396
intermedius 396
leiognathos 396
liognathus 396
microphthalmus 396
mooreanus 396
murdjan 396
murdjan 396
pahudi 396
parvidens 396
pralinius 396
praslinicus 396
sanguineus 396
symmetricus 396
tachyacron 396
violaceus 396

U. S. N. M., No. 5904. Rio Grande, Mindanao. October 1903. Bureau of Fisheries (4266). Dr. Morse. Length 165? mm. As Scomberoides tolbo parah.

U. S. N. M., No. 55995. Mindanao. Bureau of Fisheries (4230). Length 273 mm. As Scomberoides toloo-parah.

U. S. N. M., No. 56243. San Fabian, Philippines. Bureau of Fisheries (3716). Length 160 to 173 mm. As Scomberoides toloo-parah.

U. S. N. M., No. 56329. Cavite, Luzon. Dr. George A. Ling. Length 115 to 253 mm. Five examples. As Scomberoides moadetta.

Follow—Incl Caps
Leaded

134789 312

Sparus cristiceps (Cuvier)

Chrysophrys cristiceps CUVIER, Hist. Nat. Poiss., vol. 6, 1831, p. 132. (Cape of Good Hope). - PAPPE, Synops. Edible Fishes Cape, 1853, p. 19 (Table Bay at Roman Rock). - BLEEKER, Nat. Tijds. Nederland Indie, vol. 21, 1860, p. (50, 52)60 (Cape of Good Hope). - CASTELNAU, Mém. Poiss. Afrique Australe, 1861, p. 22 (Simon's Bay, Roman Rock, Table Bay, Cape of Good Hope).

Pagrus cristiceps BARNARD, Ann. South Afric. Mus., vol. 21, pt. 2, 1927, p. 700, pl. 29, fig. 1 (Table Bay, False Bay, Agulhas Bank, Algoa Bay, Natal, 50 fathoms).

Chrysophrys laticeps (not CUVIER) PAPPE, Synops. Edible Fishes Cape, ed. 2, 1866, p. 13. - GILCHRIST and THOMPSON, Marine Biol. Rep. South Africa, No. 2, 1914, p. 101. - THOMPSON, Marine Biol. Rep. South Africa, No. 4, 1918, p. 93.

Chrysophrys puniceus GILCHRIST and THOMPSON, Ann. South African Mus., vol. 6, 1908-1911, p. 173. - Natal; Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 362. - VON BONDE, South. Afric. Fisher. Marine Biol. Surv., Special Rep. No. 1, 1923, p. 19.

Depth not quite 2 with age, $2^{1}/_{3}$ in young; head $2^{3}/_{4}$ to $3^{1}/_{4}$, profile elevated, steeply sloping, sharp ridge from forehead to dorsal origin. Eye $3^{3}/_{4}$ to $5^{3}/_{4}$ in head, $1^{1}/_{3}$ to $2^{1}/_{4}$ in snout, 1 to 2 in interorbital, 1 to $1^{3}/_{4}$ in preorbital depth; lips thick, fleshy, with age largely conceal teeth; 4 upper canines, 4 to 6 lower; outermost molars largest, 3 inner rows in upper, 2 in lower jaws and no molars enlarged even with age; interorbital strongly convex; preorbital bnger than deep in young, deep as long with age, reaches almost mouth angle, lower edges traight. Gill rakers 10 on lower branch of first arch.

U. S. N. M., No. 72611. Batavia, Java. April 2, 1909. Bryant and Palmer. Length 140 to 165 mm. As Scomberoides sancti-petri.

U. S. N. M., No. 72612. Batavia. Bryant and Palmer. Length 188 mm.

U. S. N. M., No. 72613. Batavia. April 2, 1909. Bryant and Palmer. Length 163 mm.

U. S. N. M., No. 72614. Batavia. April 2, 1909. Bryant and Palmer. Length 145 mm.

U. S. N. M., No. 72615. Batavia. April 2, 1909. Bryant and Palmer. Length 188 to 235 mm. Two examples.

U. S. N. M., No. 76607. Formosa. Dr. Fred Baker. Length 45 to 164 mm. Eight examples.

U. S. N. M., No. 58011. Zamboanga. Dr. E. A. Mearns. Length 159 to 164 mm. Two examples. As Scomberoides toloo-parah.

Follow—Incl Caps
Leaded

134789 311

Pagrus gibbiceps BARNARD, Ann. South Afric. Mus., vol. 21, pt. 2, 1927, p. 698, fig. 25b (head) (Table Bay, False Bay, Agulhas Bank, Algoa Bay, Natal, to 50 fathoms).

Chrysoblephus nasutus CASTELNAU, Mém. Poiss. Afrique Australe, 1861, p. 24. (Table Bay.

Sparus lophus FOWLER, Proc. Acad. Nat. Sci. Philadelphia, 1925, p. 234, fig. 3. (Natal coast in 30 fathoms).

Depth $2^{1}/_{10}$; head $2^{9}/_{10}$, width $2^{1}/_{10}$. Snout $2^{1}/_{6}$ in head, upper profile concave; eye 4, $1^{2}/_{3}$ in snout, $1^{1}/_{5}$ in interorbital; maxillary reaches eye, expansion $\frac{1}{3}$ in eye, length $3^{1}/_{5}$ in head; 4 canines above, 6 below, in front of each jaw; each side of jaw with 12 outer molar like teeth with last 5 enlarged, also band of inner granular teeth in jaws; interorbital $3^{1}/_{8}$ in head, convex. Gill rakers 6 + 12, short, strong, lanceolate.

Scales 56 in lateral line to caudal base and 2 more on latter; 9 above, 19 below, 50 predorsal forward opposite front eye edge, 15 rows on cheek to preopercle ridge and flange also scaled. Scales with 12 to 15 basal radiating striae; 90 to 115 apical denticles, with 13 or 14 transverse series of basal elements; circuli fine.

D. XII, 10, I, third spine 1 in head, fifth ray $2^{1}/_{3}$; A. III, 9, I, second spine $2^{2}/_{3}$, first ray $2^{4}/_{5}$; caudal 1, deeply emarginate; ventral $1^{2}/_{5}$; pectoral $2^{1}/_{2}$ in combined head and body to caudal base.

Pale uniform brown. Brown bar across front of interorbital.

Natal, South Africa, Australia, Victoria.

Pagrus filamentosus Valenciennes seems to differ in having much larger scales on the cheek, but 5 rows to the preopercle angle.

No. 53032 A.N.S.P. Natal coast in 30 fathoms. H. T. Bell Marley, 1925. Length 263 mm. Type of Sparus lophus.

A. N. S. P., three examples. Padang, Sumatra. A. C. Harrison and F. M. Hiller. Length 117 to 331 mm.

A. N. S. P., seven examples. Philippines. Commercial Museum of Philadelphia.

A. N. S. P., two examples. Bombay. Prof. F. Hallberg. Purchased. Length 130 to 140 mm.

23641. Caracaran Bay, Batan Island, east coast Luzon. June 8, 1909. ~~Length 112 mm.~~

12724, 14843, 14845. Cagayan, Malhon Island, between Samar and Leyte Islands. July 27, 1909. Length 42 to 146 mm.

23994. Cataingan Bay, Masbate Island. April 18, 1908. Length 47 mm. [565]. dusky olive. Black bar in front of first dorsal downward to pectoral base; short saddle before second dorsal; bar from axil of second dorsal anal axil, slightly interrupted below. Round black blotch on lower part of opercle. dusky line from under eye across cheek. Top of head with yellowish shades. Fins otherwise with yellowish shades.

Scomberoides toloo parah (Rüppell) (Cuvier)

Lichia toloo-parah Rüppell, Atlas Reise nordl. Afrika, Fische, T. 91, 1928 (type locality, Massaua, Red Sea).

base; pectoral 3 3/4, 1 1/5 in head in young.

Largely dark umber to olive brown, lower surface scarcely paler. Body with 7 dark transverse bands, subequal in width to pale interspaces which blotched or spotted variably - also with darks; with age bands all break up more or less so whole body with mottled appearance. Iris slaty. Fins dark brownish or olive brown, often more or less neutral dusky terminally. Pectoral usually palest of fins, though most all with dark mottling with age.

Easter Island.

Chorinemus (Lichia) toloo-parah Rüppell, Neue Wirbelth. Fische, f. 44, 1835 (Red Sea).

Chorinemus tolooparah Weber and Beaufort, Fish. Indo Austral. Archip., vol. 6, p. 278, figs. 54, 56a, 1931 (Simalur; Nias; Lombok; Sumbawa; Flores; Balèkpapan, Borneo; Macassar; Liring, Amban). (Ruppell, Neue Wirbelth. Fische, p. 45, 1835 (reference).

Depth 2 2/3; head 2 2/5, width 2 1/8. Snout 3 1/2 in head from snout tip; eye 2 2/3, greater than snout or interorbital; maxillary reaches opposite eye center, expansion 2 1/2 in eye, length 2 1/2 in head from snout tip; teeth villiform, in moderately wide bands in jaws and narrow band on vomer and palatines; interorbital 3 1/2, slightly convex; preopercle ridge entire, hind edge minutely serrate. Gill rakers 5 + 15, lanceolate, twice gill filaments or 1/2 of eye; 4 above and 4 below rudimentary.

Scales 27 in lateral line to caudal base - and 4 more on latter, 2? above, 6? below, 3 predorsal, 2 rows across cheek. Lateral line concurrent with dorsal profile. Scales with 13 basal radiating striae; apical denticles 38; circuli very fine.

Scomberoides toloo parah Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 180, 1903 (1905) (Honolulu; Hilo; Waialua). — Smith and Seale, Proc. Biol. Soc. Washington, vol. 19, p. , 1906 (Mindanao). — Evermann and Seale, Bull. Bur. Fisher., vol. 26, p. 62, 1906 (1907) (San Fabian). — Seale and Bean, Proc. U. S. Nat. Mus., vol. 33, 1907, p. 241 (Jamboanga). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, p. 249, 1907 (1908) (Cavite). — Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 267, 1911 (Tutuila; Rangiroa; Vavau; Funafuti; Gilberts; Kusaie; Arno; Jaluit).

2 1/3 to 2 2/5, broadly convex. Gill rakers 4+14, lanceolate, 4/5 of gill filaments, which 1/2 of eye.

Scales 80 to 83 close along above lateral line to caudal base; tubular scales 66 to 68 in lateral line to caudal base and 8 to 10 more on latter; 16 to 20 scales above, 26 to 30 below, 25 to 30 predorsal forward to occiput. Scales with 9 to 21 basal radiating striae; 28 to 32 apical denticles, with 4 transverse series of basal elements; circuli fine.

D. XVI, 12, I, first spine 5 1/2 to 9 in head, sixteenth spine 1 3/5 to 1 4/5, second ray 1 1/2 to 1 3/5; A. III, 10, I, third spine 1 3/4 to 1 7/8, third ray 1 1/10 to 1 1/3; least depth of caudal peduncle 1 4/5 to 2; ventral 1 to 1 1/10; caudal 3 1/2 in combined head and body to caudal

— Fowler, Copeia, no. 58, p. 63, June 18, 1918 (Philippines).

— Jordan and Jordan, Mem. Carnegie Mus., vol. 10, no. 1, p. 37, dec. 1922 (Honolulu). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 79, p. 268, 1927 (Drani and Orion, Philippines; Padang materials); Mem. Bishop Mus., vol. 10, p. 140, 1928 (Honolulu; Hilo; Mukuhiva; Suva; Rangiroa; Gilberts; Arno; Marshalls; Jaluit; Vavau; Funafuti; Society Islands); Proc. Acad. Nat. Sci. Philadelphia, vol. 87, p. 140, 1935 (Pahang, Siam).

Cwel 29

Girella nebulosa Kendall and Radcliffe

Girella nebulosa Kendall and Radcliffe, Mem. Mus. Comp. Zoöl., vol. 35, 1912, p. 120, pl. 3, fig. 2, pl. 4, figs. 1-2. Cook Bay and La Perouse Bay, Easter Island.

1/m Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 221 (Easter Island).

Girellops nebulosus Regan, Proc. Zool. Soc. London, 1913, p. 369, pl. 57 (Easter Island).

Depth 2 1/4 to 2 1/2; head 3 3/4 to 4 1/8, width 1 2/5 to 1 4/5. Snout 2 7/8 to 3 in head; eye 3 2/5 to 4, greater than snout in young to 1 3/5 with age, greater than interorbital in young to 1 1/4 with age; maxillary reaches eye, length 3 to 3 1/4 in head; teeth 14 to 16 rather large, wide, compressed, tridentate to quadridentate incisors, but wearing entire with age, interorbital

? Scomber aculeatus Bloch, Naturges. Ausland. Fische, vol. 7, p. ~~336~~ 51, pl. 336, fig. 1, 1793 (type locality, Provence; Languedoc; Toulon; Marseille; Italy; Rome; Mediterranean). — Schneider, Syst. Ichth. Bloch, p. 25, 1801 (Mediterranean; India).

Chorinemus aculeatus Bleeker, Verhand. Batavia. Genoot. (hal. Ichth. Bengal.), vol. 25, p. 42, 1853 (reference).

Cuv 30

Genus Proteracanthus Günther

Proteracanthus Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 426. Type Crenidens sarissophorus Cantor, monotypic.

Body ovoid, deep. Head moderate. Muzzle obtuse. Eye moderate. Mouth small, low. One or 2 series of flat tricuspid teeth in each jaw, with band of similar teeth close behind and replacing former; no molars. Branchiostegals 5. Scales moderate, ctenoid. Head scaly except snout front. Soft vertical fins scaly basally. Recumbent spine before dorsal. Dorsal spines 9 or 10, fourth erect prolonged until longer than head; soft fin higher than all other dorsal spines; rays 15 to 20. Anal spines 3, rays 15 or 16. Caudal truncate. Paired fins short.

Easily known by the elongated fourth dorsal spine.

Chorinemus moadetta Cuvier, Hist. Nat. Poiss., vol. 8, p. 382, 1831 (Jan. 1832). (type locality, Massaua, Red Sea; Pringuemale, Ceylon). — Rüppell, Neue Wirbelth. Fische, p. 45, 1835 (reference). — Klunzinger, Verh. Zool. bot. Gesell. Wien, vol. 21, p. 448, 1871 (Red Sea). — Day, Fishes of India, pt. 2, p. 230, pl. 51B, fig. 1, 1876. — Klunzinger, Fische Roth. Meer., vol. 1, p. 105, 1884. — Weber, Siboga Exped., vol. 57, Fische, p. 390, 1913 (Sumbawa; Flores; Salibabu).

Lichia moadetta (Ehrenberg) Cuvier, Hist. Nat. Poiss., vol. 8, p. 382, 1831 (Jan. 1832) (name in synonymy). Scomberoides moadetta Wakiya, Ann. Carnegie Mus., vol. 15, p. 235, pl. 38, fig. 3, 1924 (Formosa).

1088

Chorinemus mauritianus Cuvier, Hist. Nat. Poiss., vol. 8, p. 382, 1831 (type locality, Mauritius). (Jan. 1832)

— Bleeker, Journ. Indian Archip., vol. 3, pp. 67, 68, 1848 (1849).

Gerres profundus is evidently a synonym: depth 1 4/5; head 3. Eye 3 2/3 in head; greater than snout. Scales in lateral line 42 (though crude figure would suggest much fewer and larger scales). D. IX, 10, second spine 2 1/2 in body depth. A. III, 7, second and third spines equal. Caudal broad, furcate. Pectorals reach beginning of anal rays. Bright silvery. Faint spotted band along middle of dorsal. Length 175 mm.

1 example. Buena Vista, Guimaras Island. January 14, 1909. Length 73 mm.

3 examples. Catbalogan, Samar. April 15, 1908. Length 85 to 110 mm.

5849. Cotabato, Mindanao. May 20, 1908. Length 195? mm.

5 examples. Davao, Mindanao. May 16, 1908. Length 82 to 117 mm.

Chorinemus orientalis Schlegel, Fauna Japonica, Poiss., fpts. 5-6, p. 106, pl. 57, fig. 1, 1844 (type locality, coasts of Japan); — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 474, 1860 (copied). — Martens, Preus. Exped. Ost Asien, vol. 1, p. 391, 1876 (Batjan).

Scomberoides orientalis Jordan and Evermann, Proc. U. S. Nat. Mus., vol. 25, (1903) p. 336, (Giran, Formosa). — Wakiya, Ann. Carnegie Mus., vol. 15, p. 237, pl. 38, fig. 4, July 1, 1924 (Kii; Nagasaki; Bonin Islands; Ryukyus; Formosa). — Jordan and Hubbs, Mem. Carnegie Inst., vol. 10, no. 2, p. 222, June 27, 1925 (Kagoshima Bay). — Uzuka and Matsuura, Cat. Zool. Spec. Tokyo Inst., Vertebr., p. 158, 1920 (Miyakojima).

Cael 29

Tripterodon orbis Playfair

Tripterodon orbis Playfair, Fishes of Zanzibar, 1866, p. 42, pl. 7, fig. 1. Zanzibar. 1/m

Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1925, p. 242 (Delagoa Bay). 1/m Barnard, Ann. South African Mus., vol. 21, pt. 2, 1927, p. 725 (Delagoa Bay).

Depth 1 1/2; head 3 1/4, width 2. Snout 1 3/4 in head; eye 3 1/3, 2 in snout, 1 1/4 in interorbital; maxillary reaches opposite hind nostril, expansion 1/2 eye, length 3 2/3 in head; teeth tridentate incisors, 4 rows in each jaw; interorbital 2 7/8 in head, convex, slightly gibbous. Gill rakers 1+10, short points.

Scales 45 in lateral line; 7 above, 21 below; soft vertical fins densely scaled. Scales with 4 basal radiating striae; 57 to 65 apical denticles, with 3 to 18 transverse series of basal

Chorinemus toloo (not Cuvier)
Klunzinger, Verh. zool. bot. Ges.
Wien, vol. 20, p. 447, 1871 (Red Sea).

2 examples. Tatampaya River, Palawan. December 26, 1908. Length 129 to 133 mm.

3 examples. Malcochin Harbor, Linapacan Island. December 1908. Length 75 to 84 mm.

1 example. Parang Parang, Mindanao. May 23, 1908. Length 95 mm.

3 examples. Ragay River, Ragay Gulf, Luzon. March 10, 1909. Length 86 to 108 mm.

3 examples. River at Pasacao, Luzon. March 9, 1909. Length 61 to 101 mm. Largest with some dark vertical streaks.

22292. River at Port Dupon, Leyte. in brackish water. March 17, 1909. Length 140 mm.

9 examples. Verde del Mar Island, Palawan Reef and flat. April 6, 1909. Length 85 to 133 mm.

30552 U.S.N.M. New Guinea. Australian Museum. Length 216 mm.

Chorinemus sancti-petri (not Cuvier) Bleeker, Verh. Batavia. Genoots. (Makreel.), vol. 24, p. 45, 1852 (part). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 473, 1860 (part). — Günther, Journ. Mus. Godeffroy, vol. 5, p. 138, 1876 (part). — Day, Fishes of India, — Day, Fishes of Malabar, p. 95, 1865.

pt. 2, p. 230, 1876 (part). — Sauvage, Hist. Madagascar, Poiss., p. 331, 1891 (type of Chorinemus mauritianus).

Scomberoides sancti petri Fowler, Mem. Bishop Mus., vol. 10, p. 141, fig. 34, 1928 (copied figure of Scomberoides moluccensis).

1092

Scomberoides moluccensis (not Gray)
Fowler, Proc. Acad. Nat. Sci.
Philadelphia, p. 56, fig. 1, 1905
(Christmas Island, Polynesia;
Manila; probably Polynesia).

f.[2] Five ill defined, dark, transverse bands. brachygramm[us] A

f.[3] Three brown red, transverse bands from spinous dorsal base; band from snout to eye, another from eye to throat, another across nape hyalinus

f.[4] Body mottled with darker brown, sometimes few darks transverse bands; vertical fins often variably mottled darker. perdix

e.[2] No dark transverse bands.

g.[1] No black spot above pectoral behind gill opening.

h.[1] Front anal edge and lower caudal edges whitish; soft dorsal with obscure dark subbasal longitudinal band. albomarginatus

h.[2] Anal and caudal edges not whitish.

Scomberoides tol (not Cuvier)
Jordan and Richardson, Mem.
Carnegie Mus., vol. 4, No. 4, p. 178, Aug. 28, 1909.
(Gilan record).

2 1/5; least depth of caudal peduncle 2 1/6 to 2 3/5; ventral 1 1/8 to 1 1/4; caudal 2 3/4 to 3 in rest of body; pectoral 2 1/4 to 2 3/5.

Brownish on back, side and below white. Scale rows above lateral line and with age 4 rows below, with deeper brown longitudinal median line. Iris silvery white. Fins pale, dorsal dusky gray terminally. Small examples show row of gray spots, one on each membrane just above edges of basal scaly sheaths of dorsals.

India, East Indies, Philippines, Northern Territory, Queensland. Known chiefly by its deep body and large scales. Whitley mentions that the present species has more scales than Gerres profundus, for which he proposes Parochasus.

Scomberoides formosanus Wakiya, Ann. Carnegie Mus., vol. 15, p. 236, pl. 38, fig. 3, July 1, 1924 (type locality, Kii, Formosa).

Depth 2 to 2 1/8; head 3 1/6 to 3 1/4, width 1 7/8 to 2. Snout 3 1/3 to 3 7/8 in head; eye 2 1/2 to 3 1/3, greater than snout, greater than interorbital in young to 1 to 1 1/8 with age; maxillary reaches opposite pupil, expansion 2 1/2 to 3 1/3 in eye, length 2 1/8 to 3 in head; interorbital 2 2/3 to 3, broadly convex to nearly level. Gill rakers 5+7, very short, lanceolate.

Scales 32 to 36 in lateral line to caudal base and 3 to 5 more on latter; 6 above, 10 below, 17 to 20 predorsal to front eye edge with broad premaxillary groove scaleless; 3 rows on cheek to preopercle ridge. Scales with 5 or 6 basal radiating striae; circuli very fine.

D. IX, 10, I, second spine 1 1/10 to 1 1/5 in head, first ray 2 1/8 to 2 2/3; A. III, 7, I, second spine 1 1/2 to 2, first ray 1 9/10 to

Depth $3\frac{1}{8}$ to $4\frac{1}{2}$; head $3\frac{1}{3}$ to $4\frac{1}{2}$, width $2\frac{1}{3}$ to $2\frac{2}{5}$. Snout 3 to 4 in head from snout tip; eye $3\frac{1}{4}$ to $4\frac{1}{2}$, 1 to $1\frac{1}{2}$ in snout, $1\frac{1}{8}$ to $1\frac{1}{5}$ in interorbital; maxillary reaches opposite hind eye edge, little beyond eye with age, expansion 2 to $3\frac{1}{8}$ in eye, length $1\frac{3}{5}$ to $1\frac{2}{3}$ in head from snout tip; interorbital $3\frac{1}{3}$ to $3\frac{1}{2}$, convexly elevated. Gill rakers 3 to 7 + 13 to 19, lanceolate.

Scales close set, broadly lanceolate. Lateral line forms obtuse angle opposite front of spinous dorsal.

Dorsal $\underline{\underline{I}}$, $\underline{\underline{VII}}$, $\underline{\underline{I}}$, 19, $\underline{\underline{I}}$ or $\underline{\underline{I}}$, 20, $\underline{\underline{I}}$, fifth spine $3\frac{2}{5}$ to $3\frac{1}{2}$ in total head length, second branched

ray $1\frac{2}{5}$ to $1\frac{7}{8}$; A. II - I, 18, I or I, 19, I, first ray $1\frac{2}{5}$ to 2; least depth of caudal peduncle 4 to $4\frac{4}{5}$; pectoral $1\frac{3}{5}$ to $1\frac{4}{5}$; ventral $1\frac{4}{5}$ to $1\frac{7}{8}$; caudal $1\frac{1}{4}$, $4\frac{1}{5}$ in fish without caudal, fin forked.

Back blue gray, sides and below silvery white. Row of 7 obscure small spots along side of back. Spinous dorsal membrane blackish, also apex of soft dorsal, rest of fin gray. Caudal pale, gray behind, other fins pale. Iris silvery white.

Red Sea, Madagascar, Mauritius, India, Ceylon, East Indies, Philippines, Riu Kiu, Formosa, Japan, Micronesia, Polynesia, Hawaii.

Weber and Beaufort have identified ~~identified~~ my Scomberoides moluccensis with the present species. Its scales, as shown in the figure I expressly made for the purpose of showing their character, are "small, elongate, not narrowly so" or rather more or less ovate. Günther places Thynnus moluccensis Gray with Chorinemus sancti Petri Cuvier and he lists their "half grown" from the Gronow Collection. For the present, at least, Gray's name had best rest with C. sancti-petri.

Chorinemus sancti-petri Cuvier

~~appears to me to~~ may be the present species. Its single distinctive character of most contrast is, however, not in harmony. This is the length of head, which is said to equal the body depth, a condition I have never seen in any species of the genus. Weber and Beaufort utilize this character as a valid distinction in contrast with Scomberoides toloo parah. They further elaborate "a series of 6 to 8 dark blotches above, of 3 to 5 below the lateral line." Unquestioned large specimens of S. toloo parah after long immersion in alcohol show this condition. Other features given by Weber and Beaufort as a dark blue band

Lamberoides.

usually from occiput to pectoral and the lanceolate scales pointed in their exposures are of negligible value. They report *V. sancti petri* from but one locality in the East Indies, the north coast of Flores, on a large specimen 500 mm. long, though its body depth is not definitely computed.

21068 to 21070. Abuyog, Leyte. July 26, 1909. Length 70 to 215 mm. Eleven examples.

8099. Alimango Bay, Burias Island. May 5, 1909. Length 267 mm.

Eleven examples. Atulayan Bay, Luzon. June 17, 1909. Length 49 to 84 mm.

20060. Batangas, Luzon. June 7, 1908. Length 48 mm.

21248. Below mouth of Mindanao River, Cotabato, Mindanao. May 20, 1908. Length 55 mm.

5983. Cavite market. December 1, 1908. Length 102 mm.

18359, 18360. Cebu market. April 4, 1908. Length 139 to 148 mm.

9324 to 9326. Cebu market. August 17, 1909. Length 440 to 550 mm.

21963, 21964. Cenjo Island. April 9, 1909. Length 75 to 92 mm.

7219. Libijaban Island, Ragay Gulf, Luzon. March 6, 1909. Length 236 mm.

11250. Alimango Bay, Burias Island. March 5, 1909. Length 227 mm.

3 examples. Atulayan Bay, Luzon. June 17, 1909. Length 50 to 52 mm.

8707. Batan Island and Rapurapu Island. June 5, 1909. Length 256 mm.

8669. Biri Channel. June 2, 1909. Length 264 mm.

18484 and 18485. Bolalo Bay, Palawan. December 21, 1908. Length 95 to 135 mm.

12451. Bugsuk Island, Balabac. January 5, 1909. Length 165 mm.

A577, 7257. Bustus Point, Siasi Island. September 20, 1909. Length 232 to 270 mm.

12002. Cabugan Island, Hinunangan Bay, Leyte. July 30, 1909. Length 255 mm.

One example. Davao, Mindanao. May 16, 1908. Length 40 mm.

13002. Iloilo market. March 28, 1908. Length 115 mm.

20606. Lingayen Gulf, west coast of Luzon. In 45 fathoms. May 11, 1909. Length 54 to 131 mm. Seven examples

11532, 20108, 20419, 20420. Malampaya River, Palawan. December 26, 1908. Length 94 to 212 mm.

Two examples. Malcochin Harbor, Linacapan Island. December 1908. Length 74 to 106 mm.

20163. Manila Bay. December 9, 1907. Length 84 mm.

11596. Manila market. March 16, 1908. Length 131 mm.

6632, 6633. Manila market. April 14, 1909. Length 250 to 256 mm.

size of eye on lateral line, on side of caudal peduncle at caudal base. With age band and spot less defined. Iris pale yellowish. Fins all pale to transparent. Barbels pale.

Red Sea, Zanzibar, Portuguese East Africa, Madagascar, India, East Indies, Philippines, China, Riu Kiu, Japan, Australia, Melanesia, Micronesia, Polynesia, Hawaii. The extension of the dark lateral band is variable, as sometimes it extends beyond the soft dorsal base.

6743. Manila market. April 15, 1909. Length 335 mm.

19620, 21152. Mansalay, Mindoro. June 4, 1908. Length 73 to 90 mm. Five examples.

19721, 19722. Mantaguin Bay, Palawan. April 1, 1909. Length 84 to 91 mm. Eighteen examples.

11726. Mantaguin Bay, Palawan. April 2, 1909. Length 223 mm. Five examples. Mati, Pujada Bay, Mindanao. May 15, 1908. Length 35 to 81 mm.

19733. Pamalutan Bay, Mindanao. February 5, 1908. Length 143 mm.

21802, 21803. Pandanan Island. March 24, 1909. Length 101 to 109 mm.

19936, 19937. Parang Parang, Mindanao. May 23, 1908. Length 53 to 132 mm. Six examples.

lower preopercle edge. Tubes of lateral line with many as dozen tubules. Scales with 6 basal radiating striae; 130 to 268 apical denticles, with 3 to 30 transverse series of basal elements; circuli very fine.

D. VIII — I, 8, I, third spine 1 1/8 to 1 2/5 in head, with age third and fourth spines filamentous, first branched ray 2 1/3 to 2 2/5; A. I, 6, I, first branched ray 2 1/3 to 2 3/4; caudal 1 1/8 to 1 1/4, deeply forked and lobes sharply pointed; least depth of caudal peduncle 2 4/5 to 3; pectoral 1 1/2 to 1 3/4; ventral 1 1/3 to 1 3/5.

Generally pale olivaceous, below whitish. Blackish brown band from front side of snout to eye, thence back till below last rays of soft dorsal. Blackish brown round spot up to

Two examples. Port Caltom, Busuanga Island. December 15, 1908. Length 52 to 63 mm.

One example. Port Caltom. December 16, 1908. Length 46 mm.

Two examples. Port Jamelo, Luzon. July 12, 1908. Length 37 to 42 mm.

19695, 19696. Port Jamelo. July 13, 1908. Length 35 to 114 mm. Five examples.

Two examples. Port San Vicente. November 18, 1908. Length 32 to 54 mm.

20199. Langley Point, Cavite, Luzon. March 23, 1908. Length 68 mm.

8556. San Fernando, Union Province, Luzon. March 17, 1908. Length 58 mm.

20880. Santiago River, Pagapas Bay, Luzon. February 20, 1909. Length 78 mm.

Depth 3 1/3 to 3 1/2; head 2 7/8 to 3, width 2 1/5 to 2 1/4. Snout 1 1/2 to 1 7/8 in head, eye 2 4/5 to 8, 3 to 5 1/2 in snout, 1 1/4 to 2 1/4 in interorbital; maxillary reaches 2/5 to 1/2 in snout, expansion 1/4 in eye to 2/5 greater with age, length 3 1/8 to 3 3/4 in head; barbels reach opposite hind eye edge, length 1 1/2 to 1 3/5 in head; teeth 27 to 32 in jaws, strong, short, conic, uniserial in jaws, none on palatines; interorbital 4 1/8 to 4 3/4, convex. Gill rakers 6+21, lanceolate, 1/2 gill filaments or 1/5 greater than eye.

Scales 28 or 29 in lateral line to caudal base and 2 more on latter; 3 above, 6 below, 13 predorsal forward to nostril; 4 rows below eye to

17541. Sorsogon market. March 2, 1909. Length 174 mm.

5613, 5615, 6730, 6731. Tacloban market. July 25, 1909. Length 214 to 225 mm.

20541, 20542. Tilig, Lubang. July 14, 1908. Length 95 to 120 mm. Eleven examples.

A 541. Tulayan Island. September 15, 1909. Length 400 mm.

20126. Ulugan Bay near mouth of Bahali River, Palawan. December 28, 1908. Length 44 mm.

20834. Varadero Bay, Mindoro. July 23, 1908. Length 107 mm.

1141

Pseudupeneus barberinus Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, 1905, p. 782 (Negros). 1/m Seale, Occas. Papers Bishop Mus., vol. 4, no. 1, 1906, p. 49 (Tahiti; Shortland Island). 1/m Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 276 (Apia). 1/m Evermann and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 88 (Van Fabian and Bacon). 1/m Snyder, Proc. U. S. Nat. Mus., vol. 32, 1907, p. 92 (Samoa). 1/m Kendall and Goldsborough, Mem. Mus. Comp. Zoöl., vol. 26, 1911, p. 293 (Vavau, Fakarava, Truk, Guam).

? *Upeneus moiavan* (Montrouzier) Thiollière, Fauna Woodlark, 1857, p. 153 (name in synonymy).

A 907. Limbe Strait, Celebes, Dutch East Indies. November 11, 1909. Length 500 mm.

5281, 19334, 20396. Sandakan Bay, Borneo. March 2, 1908. Length Length 96 to 127 mm.

D. VIII, 9, first spine short, second not quite long as third which equals rather more 1/3 body depth; A. 7; caudal deeply forked; pectoral equals head behind front nostril.

Vermilion, darkest on back. Silvery central spot on middle of each scale, forming 2 rows above and 2 below lateral line. Large purple spot covers opercle and descends on subopercle. Barbels rosy. Dorsal and anal rays yellow, membranes reddish. Upper caudal lobe orange, lower one red.

Size not given.

Ceylon.

(Clay.)

U. S. N. M., No. 52361. Apia, Samoa. Bureau of Fisheries. Length 256 to 270 mm. Three examples. As Scomberoides sancti petri.

U. S. N. M., No. 55371. Honolulu. Albatross Collection. 1896. Length 158 mm.

U. S. N. M., No. 55082. Honolulu. Bureau of Fisheries (06174). Length 407 mm. Depth 4 1/5; head 4 3/4, width 2 3/5. Lower gill rakers 17.

U. S. N. M., No. 66016. Honolulu. Bureau of Fisheries (A10). Length 470 mm. Depth 3 4/5; head 4 1/2, width 2 1/2. Snout 3 1/4 in head from snout tip; eye 5 1/4, 1 3/4 in snout, 1 1/2 in interorbital.

8 pt. Leaded
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Sparus longispinis JORDAN and RICHARDSON, Mem. Carnegie Mus., vol. 4, No. 4, 1909, p. 189 (Takao, Formosa).

Chrysophrys auripes RICHARDSON, Ichth. China Japan, 1846, p. 241, (Chinese Seas; Canton).

Chrysophrys xanthopoda RICHARDSON, Ichth. China Japan, 1846, p. 241, (China Seas; Canton).

Chrysophrys schlegeli BLEEKER, Nat. Tijds. Nederland Indie, vol. 6, 1854, p. ~~400.~~ 406 (Nagasaki); Verh. Batav. Genootsch. (Japan), vol. 26, ~~1857~~ 1857, pp. 20, 86 (Nagasaki); Nederland. Tijdschr. Dierk., vol. 2, 1865, p. 56 (Amoy).

Sparus schlegeli BLEEKER, Versl. Meded. Akad. Wet. Amsterdam, ser. 2, vol. 11, 1876, p. 2, pl. 1 (Nagasaki). - JORDAN and SNYDER, Annot. Zool. Japon., vol. 3, 1901, p. 80 (Yokohama, Nagasaki); Proc. U.S. Nat. Mus., vol. 23, 1901, p. 752 (Yokohama, Hondo, Kiushiu). - SNYDER, Proc. U.S. Nat. Mus., vol. 42, 1912, p. 500 (Okinawa, Riu Kiu).

Sparus (Chrysophrys) schlegelii STEINDACHNER, Ann. Hofmus. Wien, vol. 11, 1896, p. 200 (Japan).

Chrysophrys hasta (not SCHNEIDER) GÜNTHER, Cat. Fish. Brit. Mus., vol. 1, 1859, p. 490 (part, China; types of Chrysophrys xanthopoda and Chrysophrys auripes; Japan; Northwest Australia?). - SCHMELTZ, Cat. Mus. Godeffroy, No. 7, 1879, p. 41 (Corea Strait). - STEINDACHNER and DÖDERLEIN, Denkschr. Akad. Wiss. Wien, Math.-nat. Kl., vol. 48, pt. 1, 1885, p. 17 (Japan). - FRANZ, Abh. Bayer. Akad. Wiss., Math.-phys. Kl., vol. 4, Suppl. vol. 1, 1910, p. 47 (Yokohama; Aburatsubu).

Sparus hasta BLEEKER, Nederland. Tijdschr. Dierk., vol. 4, 1873, p. 138 (China). - OSHIMA, Jap. Journ. Zool. Trans. Abstr., vol. 1, No. 5, March 31, 1927, p. 149 (Taihoku).

U. S. N. M., No. 66017. Nukuhiva, Marquesas. Albatross Collection 1899. Length 215 to 257 mm. Three examples.

U. S. N. M., No. 66019. Vavau, Tonga. Albatross Collection (08848). Length 117 mm.

U. S. N. M., No. 66020. Funafuti, Ellice Islands. Albatross Collection (08978). Length 106 mm.

U. S. N. M., No. 66021. Gilbert Islands. Albatross Collection. 1900. Length 68 mm.

U. S. N. M., No. 66022. Marshall Islands. Albatross Collection 1900. Length 44 mm.

U. S. N. M., No. 66023. Suva, Fiji. Albatross Collection (08828, 08830). Length 200 to 210 mm. 2 examples.

Follow—Incl Caps
Leaded

134789 213

Scales 59 to 61 in lateral line; 9 or 10 above, 19 to 21 below, 10 rows on cheek and preopercle limb scaly.

D. XII, 10, fourth spine longest; A. III, 8, second and third spines subequal.

Rose red, deeper and more crimson tinge above. Scales marked with golden and bluish reflections. Lower edge of orbit and hind opercle edge bluish, dark in preserved specimens. Usually dark spot in pectoral axil and another at base of last dorsal ray. Fins rosy. Reaches 600 mm. (Barnard).

South Africa, Natal.

Sparus laticeps (Cuvier)

Chrysophrys laticeps CUVIER, Hist. Nat. Poiss., vol. 6, 1830, p. 122 (Cape of Good Hope. — VALENCIENNES, Règne Animal, Cuvier Ill., Poiss., 1839, pl. 34, fig. 2. — PAPPE, Synops. Edible Fish, Cape, 1853, p. 18 (Table and False Bays). — GÜNTHER, Cat. Fish. Brit. Mus., vol. 1, 1859, p. 485 (Cape; False Bay).

Pagrus (Chrysophrys) laticeps STEINDACHNER, Sitz. Ber. Akad. Wiss. Wien, Math.-nat. Kl., vol. 57, pt. 1, 1868, p. 972 (Cape of Good Hope; Mauritius).

Pagrus (Pagrus) laticeps STEINDACHNER, Sitz. Ber. Akad. Wiss. Wien, Math.-nat. Kl., vol. 83, pt. 1, 1881, p. 205 (Cape of Good Hope, Zanzibar, Mauritius).

Pagrus laticeps BARNARD, Ann. South Afric. Mus., vol. 21, pt. 2, 1927, ~~p. 701~~ (False Bay, Algoa Bay, East London, Natal, in 36 fathoms).

Sparus laticeps BLEEKER, Verh. Kon. Akad. Wet. Amsterdam, vol. 18, No. 3, 1879, p. 1 (Mauritius).

U. S. N. M., No. 66024. Jaluit, Marshalls. Albatross Collection. 1900. Length 40 mm.

U. S. N. M., No. 66025. Arhno Atoll. Albatross Collection. 1900. Length 32 mm.

U. S. N. M., No. 72093. Hafa, Okinawa. Albatross Collection. 1906. Length 142 to 243 mm. Two examples. As Scomberoides sancti petri.

Fellow—Ind Caps

284

Sparus cuvieri (Day)

Chrysophrys cuvieri DAY, Fishes of India, pt. 1, 1875, p. 141, pl. 34, fig. 3, (Mangalore); Suppl. 1888, p. 788; Fauna Brit. India, Fishes, vol. 2, 1889, p. 45.

Dentex hasta (not Sparus hasta SCHNEIDER, 1801) VALENCIENNES, Hist. Nat. Poiss., vol. 6, 1830, p. 255, (Malabar). — BLEEKER, Verh. Batav. Genoots. (Bengal), vol. 25, 1853, p. 38. — GÜNTHER, Cat. Fish. Brit. Mus., vol. 1, 1859, p. 373 (compiled). — DAY, Fishes of Malabar, 1865, p. 26 (compiled).

Depth 3; head $3^{1}/_{4}$. Snout 3 in head; eye 4 to 6, $1^{1}/_{4}$ to 2 in snout, $1^{1}/_{2}$ in interorbital; maxillary reaches $^{2}/_{5}$ in eye, length $2^{4}/_{5}$ in head; 4 to 6 pointed, rather conic incisors in front of each jaw, with villiform teeth behind; pointed and compressed row of teeth along outer side of either jaw, last few small with rounded crowns; internal 2 rows rounded small molars in lower and 3 in upper; hind preopercle edge very minutely serrated in young.

Scales 48 in lateral line, 4 or 5 above, 10 below to anal origin, 7 or 8 rows on cheek to preopercle ridge angle; few scales over soft dorsal base, band at anal base; caudal with fine scales almost to its end.

D. XI, 11 or 12, fourth spine $2^{1}/$ in head, first ray $2^{4}/_{5}$; A. III, 8 or 9, second spine $2^{3}/_{5}$, first ray 3; caudal $1^{1}/_{4}$, emarginate; least depth of caudal peduncle $2^{1}/_{2}$; pectoral 1; ventral $1^{3}/_{5}$.

Silvery gray. About 8 lines radiate from eye and hind preorbital edge. Each row of scales with darkish band along center. Dorsal and caudal with black tips. Gray band along center of dorsal and gray spot at base of each spine and ray. Anal spines gray, membrane and rays black, except last 2 rays which white. Reaches 363 mm. (Day.)

¶ Seas of India.

A. N. H. P., three examples. Padang, Sumatra. 1904. A. C. Harrison and H. L. Hiller. Length 108 to 331 mm. As Scomberoides toloo.

A. N. H. P., two examples. Orani, Philippines. 1923. Rev. J. Clemens. Purchased.

A. N. H. P., four examples. Orion, Philippines. 1923. Rev. J. Clemens. Purchased.

Follow Incl Caps
Leaded

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Back brownish, sides and below white. Opercular border of gill edge and suprascapula often dark. Iris whitish. Fins brownish. Dorsals deeper or dusky terminally, also front anal and ventral membranes. Pectoral origin with small deep brown spot.

China, Formosa, Riu Kiu, Korea, Japan, I follow Günther in referring the nominal Chrysophrys auripes Richardson and Chrysophrys xanthopoda Richardson to the group D of Günther under Chrysophrys hasta, thus corresponding to the present species.

75435 U.S.N.M. Wakanoura, Japan. Jordan and Snyder. Length 217 to 218 mm. 2 examples.

75436 U.S.N.M. Tokyo. Jordan and Snyder. Length 212 to 218 mm. 2 examples.

Sparus anglicus (Gilchrist and Thompson)

Chrysophrys anglicus GILCHRIST and THOMPSON, Ann. South Afric. Mus., vol. 6, 1908-1911, p. 172, (Durban, Natal); Ann. Durban Mus., vol. 1, p. 4, 1917, p. 360 (reference). VOM BONDE, South Afric. Fisher. Marine Biol. Surv., Sepcial Rep. No. 1, 1923, p. 18.

Pagrus anglicus BARNARD, Ann. South Afric. Mus., vol. 21, pt. 2, 1927, p. 700 (Natal coast in 40 fathoms).

Profile very steep, snout almost vertical and straight, nape sloping. Interorbital prominent. Preorbital long as deep, scarcely extending behind mouth angle, concealing less of maxillary than in Sparus gibbiceps, its lower edge straighter.

Scales 65 to 67 in lateral line; 10 or 11 above, 23 to 25 below; 11 or 12 rows on cheek, not extending forward under eye but ending on line from hind eye edge and hind preorbital angle.

Scomberoides sancti-petri (Cuvier)

Chorinemus sancti-petri Cuvier, Hist. Nat. Poiss., vol. 8, p. 379, pl. 236, 1831 (type locality, Malabar). (Jan. 1832)

—Jerdon, Madras Journ. Lit. Sci., p. 136, 1851.

—Bleeker, Nat. Tijds. Ned. Indie, vol. 2, p. 471, 1851 (Ria); vol. 3, p. 53, 1852 (Singapore), p. 237 (Wahai), p. 546 (Amboina), p. 717 (Pankalpinang, Banka), p. 741 (Kema, Celebes); Verh. Batavia. Genoot. (Makreel.), vol. 24, p. 45, 1852 (Batavia; Pasuruan); (Nal. Ich. Bengal.), vol. 25, p. 44, 1853 (reference); Nat. Tijds. Ned. Indie, vol. 4, p. 596, 1853 (Halmaheira); vol. 5, p. 320, 1853

Cnel 30

622

Genus Tripterodon Playfair

Tripterodon Playfair, Fishes of Zanzibar, 1866, p. 42. Type Tripterodon orbis Playfair, monotypic.

Body orbicular, greatly compressed. Head small, deep. Snout short. Mouth cleft narrow, short. Large movable tricuspid teeth in several rows in both jaws. Palate toothless. Cheeks deep, depth over twice orbit. Gill opening moderate, separated by broad isthmus. Gill membranes not extending across throat. Scales moderate. Soft & vertical fins finely scaled. Dorsal spines with 3 to 5 produced, others short. Caudal emarginate. Pectoral small, much shorter than head. Ventral large, with first ray as short filament.

(Amboina); vol. 6, p. 50, 1854 (Lindangole, Halmaheira), p. 90 (Banda Neira); vol. 7, p. 226, 1854 (Macassar); vol. 8, p. 296, 1855 (Ternate), p. 393 (Amboina); vol. 9, p. 282, 1855 (Macassar); vol. 10, p. 469, 1856 (Saparoea); vol. 11, p. 95, 1856 (Banda); Act. Soc. Sci. Ind. Neerl., No. 3, vol. 1, p. 4, 1856 (Manado); No. 7, vol. 2, p. 5, 1857 (Amboina); Verh. Batavia Genoot. (Nat. Ichth. Jap.), vol. 26, p. 5, 1857 (Nagasaki); Nat. Tijds. Ned. Indie, vol. 13, p. 384, 1857. (Batjan); Act. Soc. Sci. Ind. Neerl., No. 3, vol. 3, p. 5, 1857-58 (Japan); Nat. Tijds. Ned. Indie, vol. 16, p. 407, 1858 (Japara, Java); vol. 17, p. 142, 1858-59 (Boleling, Bali); Act. Soc. Sci. Ind. Neerl.

Portuguese East Africa, Natal,
Madagascar, Mekran, India,
Nicobars.

49290 U.S.N.M. Red Sea. Belloti.
Length 124 to 138 mm. 2 examples.

53099 A.N.S.P. Delagoa Bay.
F.W. Bell Marley. Length 154 mm.

53014 A.N.S.P. Durban, Natal. F.W.
Bell Marley. 1907. Length 226 mm.

1112

(Sumatra), vol. 8, p. 12, 1859 (Benculen) (-Bleeker, Nederl. Tijdz. dierk., vol. 1, p. 152, 1863 (Batjan).

— Günther, Cat. Fish. Brit. Mus., vol. 2, p. 473, 1860 (Madagascar, Ceylon, China, Amboina, Malay Peninsula, Moluccas). — Playfair, Fishes of Zanzibar, p. 64, 1866 (Aden, western India, Zanzibar).

4077

Mulloidichthys samoensis (Günther)

Mulloides samoensis Günther, Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, 1874, p. 57, pl. 43, fig. B. Apia, Samoa. 1/m

Schmeltz, Cat. Mus. Godeffroy, no. 6, 1877, p. 12 (Ponapé); no. 7, 1879, p. 40 (Ponapé); no. 9, 1884, p. 27 ("New Zealand"). 1/m

Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 453 (Honolulu). 1/m

Snyder, Bull. U. S. Fish Comm., vol. 22, 1902 (1904), p. 527 (Honolulu). 1/m

Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 253, fig. 105 (Oahu; Hilo). 1/m

Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 276 (Apia). 1/m

Evermann and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 87 (Van Fabian; Bacon). 1/m

Kendall and Goldsborough, Mem. ~~Boston~~ Comp. Zool., Mus., vol. 26, 1911, p. 204 (Funafuti, Vavau, Makemo, Fakarava, Rangiroa, Guam). 1/m

Kendall and Radcliffe, Mem. Mus. 1/m

— Günther, Journ. Mus. Godeffroy, vol. 5, pt. 11, p. 138, 1876 (Kingsmills; Samoan; Society Islands; Hawaiian Islands).
— Streets, Bull. U. S. Nat. Mus., No. 7, p. 70, 1877 (Honolulu), p. 89 (Christmas Island).
— Károli, Termesz. Füzetek, Budapest, vol. 5, p. 165, 1881 (Ceylon).
— Klunzinger, Sitzg. Ber. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 80, pt. 1, p. 378, 1879 (1880) (Port Denison; Queensland). — Macleay, Proc. Linn. Soc. New South Wales, vol. 9, p. 24, 1884 (Port Jackson; Port Denison). — Klunzinger, Fische Roth. Meer, vol. 1, p. 106, 1884. — Bauza, Anal. Soc. Esp. Hist. Nat. Madrid, vol. 14, p. 65, 1885 (Cuba). — Bosquea, Anal. Soc. Esp. Hist. Nat. Madrid, vol. 17, p. 170, 1888 (Honolulu). — Day, Fishes of India, Suppl., p. 777, 1888; Fauna British India, Fishes, vol. 2, p. 378, 1889.

— Sauvage, Hist. Madagascar, Poiss., p. 331, 1891 (part).

— Waite, Mem. Austral. Mus., vol. 3, p. 189, 1897 (Funafuti, Ellice Islands).

— Steindachner, Denks. Akad. Wiss. Wien, math.-naturw. Kl., vol. 70, p. 496, 1901 (Honolulu).

1076

Red Sea, Polynesia, Hawaii.
Distinguished chiefly by its large
scale.

— Gilchrist and Thompson, Ann. South African Mus., vol. 6, p. 186, 1908 (Natal).

— Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, p. 392, May 21, 1917 (reference). — Vinciguerra, Ann. Mus. Civ. Stor. Nat. Genova, ser. 3, vol. 10, p. 563, Aug. 23, 1926 (Sarawak).

— Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 364, Oct. 1927 (Natal; Delagoa Bay; Mozambique).

— Weber and Beaufort, Fishes Indo Austral. Archip., vol. 6, p. 280, 1931 (Flores).

Genus Apogonichthys Bleeker

Apogonichthys Bleeker, Nat. Tijds. Ned. Indië, vol. 6, 1854, pp. 312, 321. Type Apogonichthys perdix Bleeker, monotypic.

Pseudamia Bleeker, Nederl. Tijdsch. Dierk., vol. 2, 1865, p. 284. Type Apogon polystigma Bleeker, orthotypic.

Fowleria Jordan and Evermann, Bull. U.S. Fish Comm., vol. 22, 1902 (1903), p. 180. Type Apogon aurita Valenciennes, orthotypic.

Astrapogon Fowler, Proc. Acad. Nat. Sci. Phila., 1906, p. 527. Type Apogonichthys stellatus Cope, orthotypic.

Scomberoides sancti-petri Bleeker, Verslag. Akad. Wet. Amsterdam, vol. 16, p. 360, 1863 (Saparoua); Nederl. Tijds. Dierk., vol. 2, p. 31, 1865 (Manilla Bay); Verslag. Akad. Wet. Amsterdam, ser. 2, vol. 2, p. 291, 1868 (Rio, Bintang); Arch. Néerl. Sci. Nat., vol. 13, p. 37, 1878 (New Guinea). — Elera, Cat. Fauna Filipinas, vol. 1, p. 513, 1895 (Luzon; Manila, Cebu). — Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 442, 1902 (1903) (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 181, 1903 (1905) (Honolulu). — Seale, Occas. Pap. Bishop Mus., vol. 4, no. 1, p. 30, 1906 (Tahiti).

Depth 2 2/5 to 2 1/2; head 3 2/5 to 3 2/3, width 1 7/8 to 2. Snout 2 2/5 to 2 2/3 in head; eye 3 to 3 1/4, 1 1/8 to 1 1/4 in snout, 1 to 1 1/6 in interorbital; maxillary reaches 3/4 to or to front eye edge, expansion 3 in eye, length 3 1/2 to 3 2/3 in head; outer row of 16 quindentate incisors, with close set inner row of similar teeth and biserial molars; interorbital 3 to 3 1/10, widely convex. Gill rakers 7+10, lanceolate.

Scales 52 to 54 in lateral line to caudal base and 4 or 5 more on latter; 5 or 6 above, 12 or 13 below, 16 or 17 predorsal forward opposite eye center, 3 or 4 rows on cheek to preopercle ridge and flange naked. Scales with 7 to 9 basal radiating striae; 16 to 68 apical denticles, with 11 to 16 transverse rows of basal elements; circuli fine.

— Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 229, 1905 (1906) (Apia); — Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 266, 1911 (Mukuhiwa, Marquesas Islands). — Jordan and Jordan, Mem. Carnegie Mus., vol. 10, no. 1, p. 37, Dec. 1922 (Hawaii). — Wakiya, Ann. Carnegie Mus., vol. 15, p. 234, 1924 (Ryukyu; Formosa). — Jordan and Richardson, Mem. Carnegie Mus., vol. 4, no. 4, p. 178, Aug. 28, 1909 (Takao, Formosa).

— Oshima, Philippine Journ. Sci., vol. 26, no. 3, p. 352, March 1925 (Taiwan; Toko, Formosa).

Crenidens indicus Day, Report Sea Fish and Fisher. India, Nov. 15, 1873, p. CLXXXVI, no. 184. India; Fishes of India, pt. 1, 1875, p. 132, pl. 32, fig. 4 (Sind, Madras, Suez); Fauna British India, Fishes, vol. 2, 1889, p. 34, fig. 13. 1/m Steindachner, Denkschr. Akad. Wiss. Wien, Math.-~~phys. Cl.~~ naturwiss. Classe, vol. 71, pt. 1, 1907, p. 136 (Kor Garrieh, Sokotra). 1/m Augmayer, Abhandl. Kon. Bayer. Akad. Wiss., math.-physik. Klasse, vol. 26, band 6, 1913, p. 11 (Mekran).

Crenidens macracanthus Günther, Ann. Mag. Nat. Hist., series 4, vol. 14, Nov. 1874, p. 368. Madras.

— Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 77, 1925, p. 213 (Delagoa Bay); Bull. Bishop Mus., No. 22, p. 25, (Guam), p. 32 (Samoa). — Fowler and Ball, Bull. Bishop Mus., No. 26, p. 12, 1925 (Johnston Island). — Fowler, Bull. Bishop Mus., No. 38, p. 11, 1927 (Honolulu); Proc. Acad. Nat. Sci. Philadelphia, vol. 79, p. 268, 1927 (Orion; Philippines; Manila); Mem. Bishop Mus., vol. 10, p. 141, fig. 34, 1928 (Christmas Island, Polynesia?, Maui, Apia, Honolulu, Johnston Island, Tahiti, Mukumbura), vol. 11, No. 5, p. 325, 1931 (Honolulu); Proc. Acad. Nat. Sci. Philadelphia, vol. 86, 1934, p. 443, (Durban, Natal)

— McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 180, Sep. 10, 1929 (reference). — Fowler, Mem. Bishop Mus.,

(Nicobars). 1/m Klunzinger, Verhandel. Zool. bot. Gesellsch. Wien, vol. 20, 1870, p. 748 (Kosseir, Red Sea). 1/m Day, Fishes of India, pt. 1, 1875, p. 133. 1/m Schmeltz, Cat. Mus. Godeffroy, no. 6, 1877, p. 12 (Massaua). 1/m Klunzinger, Fische Roth. Meer., 1884, p. 45. 1/m Gilchrist and Thompson, Ann. South African Mus., vol. 6, 1908-11, p. 164 (Natal); Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 358 (references). 1/m Thompson, Marine Biolog. Rep. South Africa, no. 4, 1918, p. 85 (references). 1/21 Barnard, Ann. South African Mus., vol. 21, pt. 2, 1927, p. 710 (Natal Coast, Delagoa Bay, Mozambique).

Crenidens forskaelii Day, Fauna British India, Fishes, vol. 2, 1889, p. 35.

Crenidens forskali Pellegrin, Bull. Mus. Hist. Nat. Paris, vol. 13, 1907, p. 203 (Baie de Tuléar, Madagascar).

1119

Scambroides sancti petri Smith and Swain, Proc. U. S. Nat. Mus., vol. 5, p. 124, 1882 (Johnston Island). — Snyder, Bull. U. S. Fish Comm., vol. 22, p. 523, 1902 (1904) (Honolulu).

Cren 29

Crenidens crenidens (Forskål)

Sparus crenidens Forskål, descript. Animal., 1775, p. xx. Djedda and Suez. 1/2m Schneider, Syst. Ichth. Bloch, 1801, p. 285 (copied).

Sparus crenidens Walbaum, Artedi Pisc., vol. 3, 1792, p. 303 (error; copied).

Crenidens crenidens Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1925, p. 243 (Delagoa Bay). 1/2m Norman, Trans. Zool. Soc. London, vol. 22, pt. 3, no. 12, July 1927, p. 380 (Djibouti, Kabret, Gulf of Suez, Suez Canal).

Crenidens forskalii Valenciennes, Hist. Nat. Poiss., vol. 5, 1830, p. 377, pl. 162. Massauah. 1/2m Rüppell, Neue Wirbelth., 1835, p. 120 (reference). 1/2m Peters, Archiv Naturgesch., 1855, p. 243 (Mozambique). 1/2m Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 424 (Red Sea). 1/2m Castelnau, Mém. Poiss. Afrique Australe, 1862, p. 32 (Natal). 1/2m Kner, Reise Novara, Fische, 1865, p. 73

1120

Chorinemus moadetta Cuvier,
Hist. Nat. Poiss., vol. 8, p. 382, 1831
(part).

Chorinemus maculatus Swainson,
Nat. Hist. Animals, vol. 2, p. 244,
1839 (on Cuvier pl. 236).

transverse bands, as one from front of spinous dorsal, one from middle of spinous dorsal base, one from front of soft dorsal, one from last dorsal ray and one at caudal base, though all obscurely defined. Iris silvery white to grayish. Spinous dorsal neutral dusky. Soft dorsal, caudal and anal pale mottled with brownish, which more or less forms waved lines or irregular bars in many examples. Pectorals pale, clear. Ventrals pale basally and on spine, often variable brown bars and terminally neutral dusky.

Thynnus moluccensis Gray,
Cat. Fish. Gronow, p. 121, 1854
(type locality, Moluccas Islands).

centrodontus, Sparus 171
Centropristes (Arripis) salar 436
georgianus 434
salar 436
(Mulloides) rapidissimus 434
tasmanicus 436
truttaceus 435
Centropristis salar 436
centurio, Lethrinus 34
cervinus, Charax 177, 178
Diplodus 178
Sargus 177
Chaetodon armatus 437
bifasciatus 160
constrictus 437.
cyprinoides 206
Chanda rettifer 255
chaptes, Bolla 375
Corvina 375
Charax 179
capensis 179
cervinus 177, 178
puntazzo 179
Cheilodipterus aquila 407
planifrons 432, 433
Cheilotrema 370
fasciatum 370

Scomberoides moluccensis

Fowler, Proc. Acad. Nat. Sci. Philadelphia, p. 56, 1905 (part; not material; reference only).

Scomberoides toloo-parah (not *Rüppell*)

Fowler, Copeia, No. 58, p. 63, June 18, 1918 (Philippines).

i. Soft dorsal with large black ocellus; caudal whitish basally, brown terminally. carinatus

i.² No dorsal ocellus; body uniform brown, vertical fins and ventrals blackish; preopercle ridge entire, edge serrate. melanopterus

h.³ Black spot above pectoral, behind gill opening; broun streaks from eye to preopercle angle. uninotatus

d.² Dark caudal spot present; body light brown, finely dotted or spotted minutely darker. polystigmus

c.³ Seven rather diffuse longitudinal dark bands; upper half of first dorsal black, second dorsal and caudal with dark edge. glaga

Depth 3 1/4 to 4 1/5; head 4 2/5 to 4 3/4, width 2 2/5 to 2 2/3. Snout 3 1/8 to 3 1/2 in head from snout tip; eye 4 to 4 2/3, 1 1/4 to 1 1/3 in snout, 1 1/5 to 1 1/4 in interorbital; maxillary reaches 3/4 in eye, expansion 2 1/3 to 3 in eye, length 1 7/8 to 2 in head from snout tip; interorbital 3 1/3 to 3 2/5, convexly elevated. Gill rakers 7 + 17, lanceolate.

Scales elongate, hastate, very small, cycloid. Scales with 28 to 50 circuli.

D. $\underline{\underline{\text{I}}}$, $\underline{\underline{\text{VII}}}$ — $\underline{\underline{\text{I}}}$, 19, $\underline{\underline{\text{I}}}$, third spine 4 1/8 in head from snout tip, first branched ray 1 7/8 to 2; A. $\underline{\underline{\text{II}}}$ — $\underline{\underline{\text{I}}}$, 18, $\underline{\underline{\text{I}}}$, first branched ray 2 1/6 to 2 1/2; least depth of caudal peduncle 4 2/5 to 5;

pectoral $1\frac{3}{5}$ to $1\frac{3}{4}$; ventral $1\frac{3}{5}$ to $1\frac{4}{5}$; caudal $4\frac{1}{8}$ to $4\frac{1}{2}$ in rest of fish, strongly forked.

Gray brown above, white below. Along lateral line 5 dull mental dusky blotches, not larger than pupil. Iris silvery white. Soft dorsal and anal whitish, former with apical blackish blotch. Caudal grayish, other fins whitish.

Red Sea, Zanzibar, Mozambique, Delagoa Bay, Natal, Mauritius, India, Ceylon, Madagascar, East Indies, Philippines, Formosa, Japan, Queensland, New South Wales, Polynesia, Hawaii.

A. N. H. P., two examples. Delagoa Bay. 1922. H. W. Bell Marley. Length 168 & 215 mm.

A. N. H. P., four examples. Orion, Philippines. 1923. Rev. Joseph Clemens. Purchased:

A. N. H. P., one examples. Philippines. Bureau of Fisheries. As Scomberoides toloo - parah.

A. N. H. P., one example. Manila. As Scomberoides moluccensis.

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h². Anal with longitudinal basal row of yellow spots; suborbital depth 1/2 eye — — — — — — nemurus

i². Suborbital edge denticulate, depth little over half eye; fins flesh red, ends yellow — — — — — — ruber

d². Head and body uniform rosy.

j¹. Soft dorsal with submarginal yellow longitudinal band; dark blotch on lateral line behind suprascapula; suborbital depth subequal with eye — — upeneoides

j². Dorsals with submarginal brown line; yellow band on anal; suborbital depth 1 1/2 in eye — — — — — — — zysron

d³. Body with single yellow or brown median lateral band.

k¹. Dorsals and anals with yellow longitudinal bands.

l¹. Dorsals and anals each with 2 yellow longitudinal bands — — celebicus

l². Dorsal bases with yellow band; sometimes yellow band along lower edge of belly — — — — flaviventris

l³. Narrow sulphur-yellow band along spinous dorsal edge — — — petersii

k². Fins uniform yellowish white — — — filiformis

d⁴. Several yellow longitudinal bands on body, not on head.

m¹. Preorbital depth greater than eye; fins uniform pink — — — — — hypselognathus

m². Preorbital depth subequal with eye.

Scomberoides tol (Cuvier)

Chorinemus tol Cuvier, Hist. Nat. Poiss., vol. 8, p. ~~283~~ 385, 1831 (type locality, Pondicherry; Malabar, —Cantor, Journ. As. Soc. Bengal, vol. 18, pt. 2, p. 1148, 1849 (1850) (Pinang & Malay Peninsula); Amboina; Buru) V. Bleeker, —Jerdon, Madras Journ. Lit. & Sci., p. 136, 1851. Nat. Tijds. Ned. Indie, vol. 3, p. 235, 1852 (Amboina), p. 445 (Banka); Verh. Batavia. Genoot. (Makreel.), vol. 24, p. 43, 1852 (Batavia); (Nal. Ichth. Jap.), vol. 25, p. (14) 36, 1853 (Nagasaki); Nat. Tijds. Ned. Indie, vol. 7, p. 312, 1854 (between Anjer, ~~and~~ Tjiringin), p. 361 (Batjan); vol. 8, p. 345, 1855 (Tikoe, Sumatra); vol. 9, ~~p. 282~~ p. 282, 1855 (Macassar); vol. 11, p. 253, 1856 (Laboeha, Batjan), p. 419 (Muntok, Banka);

Depth 2 1/2; head 3 3/5. Snout 3 in head; eye 4 1/3, 1 2/5 in snout; jaws even; maxillary reaches nearly opposite eye, length 3 3/4 in head; outer teeth large, tridentate, inner band small; small band of teeth on vomer, none on palatines; interorbital nearly 3, little elevated; preopercle edge entire.

Scales 80 in lateral line, 13 above, 28 below; predorsal scales extend forward to eye at least; cheeks with inconspicuous, fine, irregular scales.

D. XIV or XV, 12 or 13, sixth spine 2 1/3 in head, first ray 2 1/10; A. III, 11, third spine 2 1/3, first ray 1 7/8; caudal 1, emarginate behind; least depth of caudal peduncle 2 1/8; pectoral 1 1/8; ventral 1 2/5.

Bluish gray. Blackish bar on pectoral base. Upper side of shoulder

vol. 12, p. 214, 1856 (Nias); Act. Soc. Sci. Ind. Neerl., no. 3, vol. 1, p. 31, 1856 (Manado); Nat. Tijds. Ned. Indië, vol. 13, p. 384, 1857 (Batjan), p. 388 (Timor Koepang); Act. Soc. Sci. Ind. Neerl., vol. 3, no. 3, p. 5, 1857-58 (Japan); no. 4, vol. 3, p. 3, 1857-58 (Macassar); no. 9, vol. 3, p. 2, 1857-58 (Padang), p. 3 (Trussan); Nat. Tijds. Ned. Indië, vol. 16, p. 26, 1858 (Tiboe), p. 407 (Japara, Java); vol. 19, p. 435, 1859 (Sumbawa); Act. Soc. Sci. Ind. Neerl. (Sumatra), vol. 8, p. 12, 1859 (Benculen); Nat. Tijds. Ned. Indië, vol. 21, p. 138, 1860 (Muntok, Banka).— Weber and Beaufort, Fish. Indo Austral. Archip.; vol. 6, p. 283, 1931 (Singapore; Priok; Makassar; Manado; Amboin; Batjan).

Melambaphes zebra Mc Culloch, Fishes New South Wales, 1927, p. 63 (not reported in New South Wales since Steindachner's record).

Girellichthys zebra Klunzinger, Sitz. Ber. Akad. Wiss. Wien, math.-naturwiss. Classe, vol. 80, pt. 1, 1879, p. 356 (Murray River and King George's Sound).

→ Melambaphes quentheri Gill, Proc. Acad. Nat. Sci. Philadelphia, 1863, p. 213. (on Glyphisodon nigrorii Günther.

[Melambaphes nigrorii (not Cuvier) Günther, Ann. Mag. Nat. Hist., series 3, vol. 11, Feb. 1, 1863, p. 115 (Victoria, South Australia).

Girella fasciata Steindachner, Sitz. Ber. Akad. Wiss. Wien, math.-naturwiss. Classe, vol. 53, 1866, p. 430, pl. 6, fig. 2. Hobson's Bay and Port Jackson. (Name in synonymy.)

— Günther, Cat. Fish. Brit. Mus., vol. 2, p. 473 (= compiled);
— Kner, Reise Novara, Fische, p. 162, 1865 (Java; Madras; Ceylon). — Day, Fishes of Malabar, p. 93, 1895.

— Klunzinger, Fische Roth. Meer., vol. 1, p. 106, 1884.

— Weber, Siboga Exped., vol. 57, Fische, p. 390, 1913 (Macassar; Menado).

— Barnard, Ann. South Afric. Mus., vol. 21, pt. 2, p. 564, Oct. 1927 (East London; Natal; Delagoa Bay).

Apogonichthys auritus (Valenciennes)

Apogon auritus Valenciennes, Hist. Nat. Poiss., vol. 7, 1831, p. 443. Mauritius. — Günther, Journ. Mus. Godeffroy, vol. 1, pt. 1, 1873, p. 23 (Tahiti and Yap). — Day, Fishes of India, pt. 1, 1875, p. 63, pl. 17, fig. 2 (Suez, Andamans, Massawah, Zanzibar). — Streets, Bull. U. S. Nat. Mus., no. 7, 1877, p. 100 (Samoa). — Klunzinger, Sitzb. Akad. Wiss. Wien, vol. 80, pt. 1, 1879, p. 344 (Port Darwin). — Day, Fauna Brit. India, vol. 1, 1889, p. 499. — Thurston, Notes Pearl Fisher. Ceylon, 1890, p. 91 (Tuticorin). — Borrieri, Ann. Mus. Civ. Genova, vol. 41, 1904, p. 191 (Nocra on Dahalac Island). — Pellegrin, Bull. Mus. Hist. Nat. Paris, vol. 10, 1904, p. 544 (Djibouti, Red Sea). — Weber, Siboga Exped., vol. 57 Fische, 1913, p. 232 (Kwandang Bay, Galewo Straits, West New Guinea; Banda).

Scomberoides tol Bleeker, Nederl. Tijdsr. Dierk., vol. 1, p. 240, 1863 (Obi); vol. 2, p. 34, 1865 (Siam), p. 174 (reference). — Fowler, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, p. 59, 1904 (Padang); Proc. Acad. Nat. Sci. Philadelphia, p. 59, 1905 (Padang example). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, p. 249, 1907 (1908) (Manila). — Fowler and Bean, Proc. U. S. Nat. Mus., vol. 62, art. 2, p. 19, 1922 (Takao, Formosa). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 79, p. 268, 1927 (Orani, Philippines); vol. 86, p. 443, 1934 (Durban, Padang, Philippine materials).

— Oshima, Philippine Journ. Sci., vol. 26, no. 3, p. 351, March 1925 (copied day) —

Chorinemus moadetta (not Cuvier) Ruppell, Neue Wirbelth. Fische, p. 45, 1835 (part). — Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 21, p. 448, 1871 (part). — Day, Fishes of India, pt. 2, p. 230, 1876 (part).

Scomberoides formosanus (not Wakeya 1924) Oshima, Philippine Journ. Sci., vol. 26, no. 3, p. 349, pl. 1, fig. 1, March 1925 (type locality, Keelung, Formosa).

Apogon (Apogonichthys) auritus Klunzinger, Verh. Zool. bot. Gesell. Wien, vol. 20, 1870, p. 709 (Kosseir, Red Sea). — Peters, Monatsb. Akad. Wiss. Berlin, 1876, p. 436 (Mauritius). — Kossmann and Rauber, Zool. Ergebn. Reise. Roth. Meer., 1877, p. 7 (Red Sea). — Klunzinger, Fische Roth. Meer., 1884, p. 19 (Kosseir). — Steindachner, Abhandl. Senckenberg. Naturf. Gesell., vol. 25, 1900, p. 416 (Ternate).

Apogonichthys auritus Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 246 (copied). — Playfair, Fishes of Zanzibar, 1866, p. 21 (Zanzibar). — Day, Proc. Zool. Soc. London, 1870, p. 682 (Andamans). — Ogilby, Proc. Roy. Soc. Queensland, vol. 21, 1908, p. (Dunk Island and Bell's Swamps). — Fowler, Bishop Mus. Bull., No. 27, 1925, p. 8 (Guam). — Fowler and Ball, Bishop Mus. Bull., No. 36, 1925, p. 13 (Wake Island).

depth 3 1/3 to 4 1/8; head 3 2/5 to 4 3/4, width 2 1/5 to 2 1/4. Snout 3 to 3 1/2 in head from snout tip; eye 3 1/4 to 5, 1 2/5 to 1 1/2 in snout, 1 3/5 to 1 4/5 in interorbital; maxillary reaches 1/2 in eye, expansion 2 1/3 in eye, length 2 to 2 1/4 in head from snout tip; interorbital 3 to 3 2/3, convex. Gill rakers 6 to 8 + 18 or 19, compressed, slender, pointed, minute bristles on inner edges, subequal with gill filaments.

Scales fine and slenderly elongate.

D. I, VII, I, 20 or I, 19, first branched ray 1 1/2 to 1 3/5 in total head length; D. II - I, 19 or I, 20, first branched ray 1 3/5 to 1 3/4; least depth of caudal peduncle 3 7/8 to 5; pectoral 1 1/2 to 2, rays II, 15; ventral I, 5, fin 1 4/5 to 2 in total

head length; caudal 4 1/8 in rest of fish.

Gray above, blackish gray along profile of back and blackish streak above eye along upper side of head. Sides and lower surfaces of body silvery white. Along upper side usually 4 or 5 pale gray blotches in lateral series. Dorsal spinous black. Soft dorsal yellowish white, anterior rays terminally black. Caudal gray. Anal and paired fins whitish, pectoral axil gray. Iris whitish.

Red Sea, Delagoa Bay, Natal, Madagascar, S. India, Ceylon, Malaya, East Indies, Philippines, Formosa, Japan. Lives in the sea and estuaries.

Scomberoides formosanus Oshima
is preoccupied and was based
on an example but 91 mm. long.
hence its large eye 3.27 in head.

Genus Mulloidichthys Whitley

Mulloidichthys Whitley, Records Australian Mus., Vol. 17, No. 3, June 27, 1929, p. 122. Type Mullus flavolineatus Lacepède, virtually. Mulloidichthys Whitley proposed to replace Mulloides Bleeker. Mulloides (not Richardson 1843) Bleeker, Verhandel. Batavia. Genootsch. (Percoid.), vol. 22, 1849, p. 6. Type Mullus flavolineatus Lacépède, monotypic.

Body usually somewhat slender. Snout moderately long, usually with convex profile. Eye moderate to large. Maxillary short, usually falls well short of eye. Opercle with small flat spine. Jaws with several rows or narrow villiform band of teeth. Palate toothless. ←

8682, 8683. Batog Island, Long Point. June 3, 1909. Length 303 to 334 mm. Four examples.

One example. D. 5561. Teomabal Island (N.W.), S. 36° W., 0.2 mile (lat. 5° 50' 45" N., long. 121° 01' 15" E.), Jolo Island. In 10 fathoms. September 19, 1909. Length 37 mm.

One example. Port Lupon, Leyte. March 17, 1909. Length 42 mm.

8527. Verde del Veer Island. April 7, 1909. Length 378 mm.

Mullus luteus Playfair, Fishes of Zanzibar, 1866, p. 41 (Zanzibar; Aden).

Parupeneus luteus Bleeker, Verhandel. Kon. Akad. Wetensch. Amsterdam, vol. 15, no. 3, 1875, p. 34 (Sumatra, Java, Ceram, Amboina, New Guinea); Atlas Ichth. Ind. Néerland., vol. 9, 1877, pl. (4) 394, fig. 1. 1/3 Klunzinger, Fische Roth. Meer., 1884, p. 52. 1/3 Weber, Siboga Exped., Fische, vol. 57, 1913, p. 296 (Makassar; Sulu).

Upeneus arimaa (Montrouzier) Sauvage, Faune Woodlarkia, 1857, p. 152 (name in synonymy).

A. N. S. P., three examples.
Padang, Sumatra. 1904. A. C.
Harrison and H. M. Hiller.

A. N. S. P., seven examples.
Philippines. Commercial Museum
of Philadelphia.

A. N. S. P., two examples. 1925.
Dr. J. Hallberg. Purchased.
Length 130 to 140 mm.

Follow—Incl Caps
Leaded

154786 210

Pinkish, silvery below, with darker vertical bands as in Sparus gibbiceps. Head dark red, with whitish patch before eyes. Red stripe at pectoral base. Reaches 470 mm. (Barnard.)

South Africa. According to Barnard more abundant on the Natal coast than Sparus gibbiceps and not ranging to the Cape. He says the scaling on the cheek distinguishes the two species.

Sparus gibbiceps (Cuvier)

Chrysophrys gibbiceps CUVIER, Hist. Nat. Poiss., vol. 6, 1830, p. 127, pl. 147, (Cape of Good Hope. - BLEEKER, Nat. Tijds. Nederland. Indië, vol. 21, 1860, p. (50,52)62 (Cape). - CASTELNAU, Mém. Poiss. Afrique Australe, 1861, p. 20 (Simon's Bay). - KNER, Reise Novara, Fische, 1865, p. 86 (Cape). - CANESTRINI, Arch. Zool. Anat. Fisiol. Genova, ser. 2, vol. 1, 1869, p. 154 (Australia). - CASTELNAU, Rec. London Internat. Exhib., pt. 7, No. 5, 1873, p. 9 (Victoria). - GILCHRIST and THOMPSON, Marine Biol. Rep. South Africa, No. 2, 1914, p. 97, fig. (habits). - GILCHRIST, Marine Biol. Rep. South Africa, No. 3, 1916, p. 5, fig. 2 (egg and larva). - GILCHRIST and THOMPSON, Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 361 (references). - THOMPSON, Marine Biol. Rep. South Africa, No. 4, 1918, p. 92 (references). - VON BONDE, South Afric. Fisher. Marine Biol. Surv., Special Rep. No. 1, 1923, p. 18.

Chrysoblephus gibbiceps SWAINSON, Nat. Hist. Animals, vol. 2, 1839, pp. 171, 221 (on CUVIER, pl. 147). - PAPPE, Synops. Edible Fish. Cape, 1853, p. 19 (False Bay, Mostert Bay, Fishhoek, Table Bay).

Genus Seriola Cuvier

Seriola Cuvier, Règne Animal, vol. 2, p. 315, 1817. (Type Caranx dumerili Risso, designated by Jordan and Gilbert, Bull. U. S. Nat. Mus., No. 16, p. 444, 1882.)

Zonichthys Swainson, Nat. Hist. Animals, vol. 2, p. 248, 1839. (Type Scomber fasciatus Bloch, designated by Swain, Proc. Acad. Nat. Sci. Philadelphia, p. 276, 1882.)

Naucratopsis Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 441, 1862. (Type Seriola gigas Günther, monotypic.)

Halatractus Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 442, 1862. (Type Scomber zonatus Mitchill, orthotypic.)

Lepidomegas Thominot, Bull. Soc. Philomath. Paris, ser. 7, vol. 4, p. 173, 1880. (Type Lepidomegas mulleri Thominot, monotypic.)

Seriolina Wakiya, Ann. Carnegie Mus.,
vol. 15, p. 230, July 1924. (Type
Seriola intermedia Schlegel,
orthotypic.)

Body oblong, moderately compressed, occiput and breast not trenchant. Head usually conic, not obtuse. Eye little advanced in head. Mouth rather large. Maxillary with strong supplemental bone. Premaxillaries protractile. Teeth villiform, in broad bands in jaws, on vomer, palatines and tongue. Gill rakers moderate, lanceolate to knob like masses. Scales small, cycloid, present on sides of head. Lateral line scarcely arched, not armed with bony tubes behind. First dorsal with 5 to 7 low spines, joined by membrane, persistent through life. Second dorsal very long, elevated in front. Anal like

soft dorsal, not nearly so long, shorter than abdomen, preceded by 2 very small free spines, disappearing with age. No finlets. Pectorals short, broad. Ventrals very long.

Food and game fishes of moderate size. Species few.

Analysis of Species

a.' Haueratopsis. Dorsal rays 23 to 25.

b.' depth 2 2/3. hippox.

b.² depth 4 4/5. excusabilis.

a.² Dorsal rays 29 to 34.

c.' Seriola. Lower gill rakers 12 to 20.

d.' Maxillary reaches front of eye with age; scales about 200; lower gill rakers 20 to 23. lalandi.

d.² Maxillary reaches 1/3 in eye; lower gill rakers 17. rivoliana.

d.³ Maxillary reaches 1/2 in eye with age; scales about 150; lower gill rakers 12 to 15.

e.' depth 3 to 3 1/2. dumerili.

e.² depth 4 3/5. grandis.

c.² Seriolina. Lower gill rakers 8 or 9. nigrofasciata.

Seriola hippos Günther

Seriola hippos Günther, Ann. Mag. Nat. Hist., ser. 4, vol. 17, p. 392, May 1, 1876 (type locality, Sydney). — Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 4, p. 541, 1881 (copied). — Ogilby, Edible Fish. New South Wales, p. 85, 1893. — Waite, Austral. Mus. Mem., No. 6, pt. 1, p. 71, pl. 9, fig. 1, 1899 (Port Stephens). — McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 183, Sept. 10, 1931 (reference); Fisher New South Wales, ed. 3, p. 53, pl. 21, fig. 192 c, 1934.

Depth 2 1/2 to 2 3/5; head 2 1/3 to 2 1/2, width 2 to 2 1/10. Snout 4 1/8 to 4 2/5 in head from snout tip; eye 3 1/10 to 3 1/2, longer than snout or interorbital; maxillary reaches 3/4 to 4/5 in eye, expansion 1 7/8, length 1 7/8 to 2 in head; teeth villiform, in bands in jaws and on vomer, none on palatines; interorbital 4 1/2 to 4 2/3, nearly level; preopercle ridge and edge entire. Gill rakers 6+15, lanceolate, equal gill filaments or 2 2/3 in eye.

Scales 21 or 22 in lateral line and 3 more on latter, 2 above, 6 below; 4 or 5 predorsal, 2 rows on cheek; head naked, except cheeks and opercles. Tubes in lateral line large, well exposed, each with well developed basal scale. Scales with 13 to 16 basal radiating striae; 84 to 115 apical

Depth 2 2/3; head 3. Snout 3 in head; eye 5 1/5, 1 3/4 in snout; maxillary reaches 1/2 in eye, expansion 1, length 2 1/10 in head; interorbital greatly elevated.

Scales minute. Lateral line little undulate, arched at first and becomes median only on hind part of tail.

D. I, VII, I, 23 to 25, fourth erect spine 4 2/5 in head, first branched ray 2; A. II—I, 16 or 17, first branched ray 2 1/10; caudal 1 1/3, deeply emarginate; least depth of caudal peduncle 5 1/8; pectoral 1/2; rays 20; ventral rays I, 5, fin 1 2/3 in head

Silvery, back greenish. Five rather broad black cross bands on upper half of body, one before, one below first dorsal, 3 below soft dorsal. Similar less distinct band from eye above. First dorsal and ventrals black.

(Günther, Waite.)

New South Wales. Reaches 310 mm.

Seriola excusabilis (McCulloch)

Naucratoptis excusabilis (Whitley) McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 183, Sep. 10, 1929 (name on Günther).

Seriola gigas (not Poey early 1860) (Günther, Cat. Fish. Brit. Mus., vol. 2, p. 466, 1860 (type locality, Houtmans Abrolhos) — Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 4, p. 540, 1881 (copied).

Apogonichthys polystigma Bleeker

Apogonichthys polystigma Bleeker, Nat. Tijds. Ned. Indië, vol. 6, 1854, p. 484. Wahai, Ceram; Priaman, Sumatra. — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 246 (copied). — Peters, Monatsb. Akad. Wiss. Berlin, 1868, p. 256 (Pulo brani, Singapore). — Kuroli, Termesz. Füzetek, Budapest, vol. 5, 1882, p. 152 (Singapore). — Meyer, Anal. Soc. Españ. Hist. Nat., Madrid, vol. 14, 1885, p. 13 (Cebu). — Beaufort, Bijdr. Dierk., Amsterdam, 1913, p. 115 (Amboina).

Pseudamia polystigma Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 107 (Amboina); vol. 8, 1876-77, pl. (70) 348, fig. 2. — Elera, Cat. Fauna Filip., 1895, p. 471 (Cebu). — Jordan and Seale, Bull. Bur. Fisher., vol. 26, 1906

depth 4 4/5; head 4 4/5. Snout moderate, 2 to 2 1/2 times eye; maxillary reaches front edge of orbit, broadly expanded; teeth in broad villiform bands, irregular quadrangular band on vomer and very broad elliptical band on palatines; preopercle angle rounded.

Scales small. Lateral line irregularly waving, with slight keel posteriorly.

D. VIII, I, 24, fifth spine 4 2/3 to 5 1/3 in head, soft fin height more than half body depth; A. II - I, 16, soft anal like soft dorsal; last dorsal and anal ray longer than preceding rays with age; caudal deeply forked; ventrall longer than pectoral, not reaching vent, pointed, inserted below hind part of pectoral root.

Color uniform, sometimes dotted with brown. Length 1220 mm. (Günther.)

Western Australia.

Seriola lalandi Valenciennes

Seriola lalandi Valenciennes, Hist. Nat. Poiss., vol. 9, p. 208, 1833 (type locality, Brazil).

Seriola lalandii Günther, Cat. Fish. Brit. Mus., vol. 2, p. 463, 1860 (Cape Seas; St. Helena). — Steindachner and Döderlein, Denks. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 49, p. 185, 1884 (1885).

— Sauvage, Hist. Madagascar, Poiss., p. 518, 1891 (reference). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 555, Oct. 1927 (Port Nolloth; Table Bay; False Bay; Agulhas Bank).

Seriola aureo-vittata Schlegel, Fauna Japonica, Poiss., pts. 7–9, p. 115, pl. 62, fig. 1, 1845 (type locality, Nagasaki). — Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 66, 1901 (reference). — Snyder, Proc. U.S. Nat. Mus., vol. 42, p. 711, 1912 (Aikawa; Misaki; Tsuruga; Kagoshima). — Jordan, Tanaka, Snyder, Journ. College Sci. Tokio, vol. 33, p. 126, fig. 92, 1913 (reference). — Wakiya, Ann. Carnegie Mus., vol. 15, p. 223, pl. 35, 1924 (Sendai Bay; Tokyo Bay; Kii; Kumamoto; Gensan and Chemulpo; Port Arthur). — Fowler, Mem. Bishop Mus., vol. 10, p. 142, 1928 (type of Seriola sparna).

Seriola aureo-vittata Richardson, Ichth. China and Japan, p. 276, 1846 (China; Japan; Canton).

Seriola aureovittata Bleeker, Verhand. Batavia. Genoot. (Nat. Hist. Japan), vol. 25, 1853 (p. 15, reference). — Wakiya, Ann. Carnegie Mus., vol. 15, July 1, 1924, p. 223, pl. 35, fig. 2 (Vendai Bay; Tokyo Bay; Kii; Kumamoto; Gensan and Chemulpo, Korea; Port Arthur).

~~Kyphosus lembus Cuvier~~

Pimelepterus lembus Cuvier, Hist. Nat. Poiss., vol. 7, 1831, p. 269. Panicolo. 1/m Günther, Cat. Fishes British Mus., vol. 1, 1859, p. 498 (~~Borneo~~ not specimen). 1/m Playfair, Fishes of Zanzibar, 1866, p. 46 (Zanzibar). 1/m Bleeker, Atlas Ichth. Ind. Neerland., vol. 9, 1877, p. 15, pl. (2) 364, fig. 1 (Batu, Pinang, Singapore, Java, Celebes, Ternate, Batjan, Amboina). 1/2m Károli, Termesz. Füzetek, Budapest, vol. 5, 1881, p. 157 (Rangoon).

Kyphosus lembus Fowler, Journ. Acad. Nat. Sci. Philadelphia, Series 2, vol. 12, 1904, p. 530 (Padang). 1/m Jordan and Thompson, Proc. U. S. Nat. Mus., vol. 41, 1912, p. 595 (Wakanoura). 1/m Herre and Montalban, Philippine Journ. Sci., vol. 33, No. 4, August 1927, p. 437, pl. 7, fig. 2 (Iba, Calapan, Tablas Island, Iloilo,

Seriola quinqueradiata Schlegel, Fauna Japonica, Poiss., pts. 7–9, p. 115, pl. 62, fig. 2, 1845 (type locality, Nagasaki). — Richardson, Ichth. China and Japan, p. 272, 1846 (China; Japan). — Bleeker, Verh. Batavia. Genoot. (Nat. Ichth. Japan), vol. 25, pp. 5 (15), 36, 1853 (Nagasaki); Act. Soc. Sci. Ind. Néerl., vol. 3, no. 3, p. 6, 1857–58 (Japan). — Steindachner and Döderlein, Denks. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 49, p. 185, 1884 (1885). — Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 66, 1901 (reference). — Snyder, Proc. U. S. Nat. Mus., vol. 42, p. 496, 1912 (Okinawa record). — Izuka and Matsuura, Cat. Zool. Spec. Mus. Tokio, Vertebr., p. 158, 1920 (Hakodate).

— Walsiya, Ann. Carnegie Mus., vol. 15, p. 225, pl. 36, fig. 1, July 1, 1924 (Aomori; Toyama; Miyako; Sendai Bay; Tokyo Bay; Kii; Uwajima; Kagoshima; Kumamoto; Fusan; Genjan and Seishin, Korea).

Scomber capensis Pappe; Synop. Edible Fish. Cape of Good Hope, p. 23, 1856 (type locality, Cape of Good Hope).

Lichia pappei Castelnau, Mém. Poiss. afrique australe, p. 40, 1861 (type locality, Kalk Bay, South Africa).

Seriola cristata Steindachner and
Döderlein, denksc. Akad. Wiss. Wien,
Math.-naturw. Kl., vol. 49, (1884) p.
1884
187, (type locality, Tokio).
— Jordan and Snyder, Annot.
Zool. Japon., vol. 3, (1901) p. 66,
(reference). — Wakiya, Ann.
Carnegie Mus., vol. 15, July 1, 1924
p. 229, pl. 37, fig. 1, (Yagami Bay,
Anakusa; Ryukyu).

Cat. 179 Kyphosus vaigiensis (Quoy and Gaimard)

Pimelepterus vaigiensis Quoy and Gaimard, Voy. Uranie, Zool., 1825, p. 386, pl. 62, fig. 4. Iles des Papous; Ile Bony. 1 m

Duncker, Mitteil. Naturh. Mus. Hamburg, vol. 21, 1903 (1904), p. 151 (Singapore).

Pimelepterus vaigiensis Günther, Cat. Fishes British Mus., vol. 1, 1859, p. 498 (Amboyna; India). 1/m Schmeltz, Cat. Mus. Godeffroy, No. 4, 1869, p. 14 (Navay); No. 5, 1874, p. 74 (Navaii; Tahiti). 1/m

Günther, Journ. Mus. Godeffroy, vols. 3-4, pts. 5-6, 1874, p. 68 (Pelew Islands). 1/m Schmeltz, Cat. Mus. Godeffroy, No. 6, 1877, p. 12 (Pelew Islands). 1/m Bleeker, Atlas Ichth. Ind. Néerland., vol. 9, 1877, p. 17, not pl. (2) 364, fig. 2 (not specimen ~~Java, Celebes, Ternate, Limboto, Waigiu, New Guinea~~).

1/m Günther, Rep. Voy. Challenger, vol. 1, 1880, p. 56 (Nares Harbor, Admiralty Islands).

1152

Seriola dumerilii (not *Ruppo*.)
(*Günther*, Cat. Fish. Brit. Mus.,
vol. 2, (1860) p. 462) (China).

rakers 21 on lower branch of first arch, 1/2 eye diameter.

Scales 59 in lateral line to caudal base and 6 more on latter, 75 along above lateral line, 6½ along below; 12 above, 21 below.

D. XI, 13, sixth spine 2 1/3 in head, first ray 3; A. III, 12, third spine 2, first ray 2.

Above plumbeous, each scale with narrow lighter border forming silvery spot behind. Sides with 8 gold bronze bands. Cheeks and opercles with 2 broad bronze gold bands, upper from eye to opercle, lower behind mouth angle to preopercle. Spinous dorsal violet. Soft dorsal, anal and caudal plumbeous. Pectoral blue gray. Ventral violet.

Length 431 mm. (Agilby; McCulloch).

Seriola sparna Jenkins, Bull. U. S. Fish Comm., vol. 22, 1902 (1903), p. 442, fig. 14, (type locality, Honolulu). — Jordan and Jordan, Mem. Carnegie Mus., vol. 10, no. 1, (December 1922) p. 37, (Honolulu).

longitudinal lines, one median on each series of scales. Fins grayish mauve or pale silvery pinks. Length 168 mm. (Bleeker.)

East Indies and Queensland. The above description is from Bleeker's account of the type. Günther placed it as a doubtful synonym of Kyphosus sectatrix, though Weber's rediscovery in the East Indies locates it where it apparently rightly belongs. The redescription and figure by McCulloch of the type of Kyphosus gibsoni Ogilby seems to show it is also synonymous. However, scales are shown on its preorbital. In brief its characters are:

Depth 2 1/2; head. Snout 3 2/3 in head; eye 4 1/3, 1 1/10 in snout, 1 4/5 in interorbital; maxillary reaches eye; interorbital 3 2/3 in head; preopercle edge entire. Gill

Depth $3\frac{1}{3}$ to $4\frac{1}{5}$; head $3\frac{1}{5}$ to $3\frac{1}{3}$, width $1\frac{7}{8}$ to 2. Snout $2\frac{4}{5}$ to 3 in head from snout tip; eye $5\frac{2}{3}$ to $6\frac{1}{5}$, 2 to $2\frac{1}{3}$ in snout, 2 to $2\frac{1}{8}$ in interorbital; maxillary reaches eye or $\frac{1}{8}$ in eye, expansion $1\frac{1}{5}$ to $1\frac{1}{4}$ in eye, length $2\frac{2}{5}$ to $2\frac{2}{3}$ in head from snout tip; interorbital $2\frac{3}{4}$ to $3\frac{1}{8}$, well convex. Gill rakers 8 + 20 or 21, lanceolate, equals gill filaments or eye. Scales 160 to 180 in lateral series close along lateral line to caudal base, with slight cutaneous keel on side of caudal peduncle; 30 to 32 above, 27 or 28 below; 12 rows on cheeks to preopercle ridge.

D. VI — I, I, 30, I to 33, I, third spine 4 7/8 to 5 1/5 in total head length, first branched ray 2 3/5 to 2 2/3; A. II, I or II, 18, I or 19, I, first branched ray 3 1/3 to 3 3/4, caudal 1 1/3 to 1 2/5, deeply forked, lobes sharply pointed; least depth of caudal peduncle 6 4/5 to 8; pectoral 2 to 2 1/8, rays II, 18 or 19; ventral I, 5, fin 2 to 2 1/8 in total head length.

Back brown, side and below whitish. Iris pale to whitish. Fins pale, dorsals and caudal little more brownish.

Cape Seas, China, Rui Kiu, Korea, Japan, Hawaii. Also in the Atlantic.

U. S. N. M., No. 22508. Nagami, Japan. Japanese Government. Length 402 mm.

U. S. N. M., No. 48150. Hakodate, Japan. V. Rozawa. Length 190 mm.

7556

Mekran, India, Ceylon, Indo China.

51344 A.N.S.P. Colombo, Ceylon.

Prof. F. Hallberg. Length 70 mm.

51345 A.N.S.P. Koh Chang, Gulf of Siam. April 5, 1925. Dr. W. M. Smith.

Length 76 mm.

53172 to 53174 A.N.S.P. Bombay, India.

Prof. F. Hallberg. 1924. Length 81 to 88 mm.

Seriola rivoliana Valenciennes

Seriola rivoliana Valenciennes, Hist. Nat. Poiss., vol. 9, p. 207, 1833 (type locality, "l'Archipel"; Rivoli collection). — Ribeiro, Archiv. Mus. Nac. Rio Janeiro, vol. 17, [illegible] (Carangidae) p. 30, 1915 (Brazil). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 78, p. 268, 1926 (Buenos Aires).

6 examples. Cebu market. March 28, 1909. Length 38 to 73 mm. [1490.]

6471 to 6484. Cebu market. August 13, 1909. Length 43 to 72 mm.

1 example. Cannahala Bay, Ragay Gulf. March 11, 1909. Length 35 mm.

Seriola bonariensis Valenciennes, Hist. Nat. Poiss., vol. 9, p. 211, 1833 (type locality, Buenos Aires). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 464, 1860 (no locality). — Norman, Ann. Mag. Nat. Hist., ser. 9, vol. 9, p. 321, 1922 (Natal). — Barnard, Ann. South African Mus., vol. 24, pt. 2, p. 536, Oct. 1927 (on Norman's record).

pale spot and usually a single dark ring to scale. Side of head with similar dark rings only little larger and more scattered on opercular region. Top of head back and end of muzzle dusted with deep brown. Iris brown. Spinous dorsal dusky. Soft dorsal with white margin, also base pale and rest of fin dusky. Anal like soft dorsal. Rounded blackish brown blotch at base of caudal large as eye. Other fins all pale or whitish.

East Indies, Philippines, Polynesia.

Depth 5; head 3 3/4, width 2.
Snout 2 3/4 in head from snout
tip; eye 7, 2 3/4 in snout, 2 2/5 in
interorbital; maxillary reaches
slightly beyond eye front,
expansion equals orbit;
interorbital 3 in head.

Cheeks with 14 rows of scales.
Preopercle ridge and front of
opercle finely striate.

D. VII — II, 19?, third spine 7
in total head length, first
branched ray 2 1/8; A. II — III, 15,
first branched ray 2 2/3; least
depth of caudal peduncle 5 1/2;
caudal 1 1/4, strongly forked,
lobes slender; pectoral 1 7/8;
ventral 2 1/8.

Back olivaceous, below pale.
Fins dull brown. Dark shades,
apparently traces of dark band

from nape through eye to pre-orbital.

Argentina, Natal. The above description from an example 213 mm long, in the Academy, from Buenos Aires. It is evidently abnormal in the few dorsal and anal rays which are given as 28 to 30 and 19 to 21 respectively. Also found in the West Indies and the Mediterranean.

Seriola dumerili (Risso)

Caranx dumerili Risso, Ichth. Nice, p. 175, pl. 6, fig. 20, 1810 (type locality, Nice).

Caranx dumerilii Elera, Cat. Fauna Filipinas, vol. 1, p. 512, 1895 (Luzon; Cavite; Santa Cruz; Manila).

Seriola dumerilii Valenciennes, Hist. Nat. Poiss., vol. 9, p. 201, pl. 259, 1833 (Nice; Naples; Sicily; Morée; Genoa); Règne Animal, Cuvier, Poiss., ed. ill., pl. 56, fig. 1, 1839. — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 462, 1860 (copied). — Kner, Reise Novara, Fische, p. 161, 1865 (Manila). — Steindachner and Döderlein, Denks. Kaiserl. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 49, p. 186, 1884 (1885).

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Seriola dumerili Günther, Journ. Mus. Godeffroy, vol. 5, pt. 11, 1876, p. 136, Pl. 90, fig. a, (Hawaiian Islands).

Cuv 29

Kyphosus oblongior (Cuvier)

Pimelepterus oblongior Cuvier, Hist. Nat. Poiss., vol. 7, 1831, p. 264. No locality. 1/m Bleeker, Atlas Ichth. Ind. Néerland., vol. 9, 1877, p. 16, pl. (2) 364, fig. 3 (type).

Kyphosus oblongior Weber, Fibogha Exped., vol. 57, Fische, 1913, p. 194 (Lirung, Salibabu).

Kyphosus gibsoni Ogilby, Mem. Queensland Mus., vol. 1, 1912, p. 50. Moreton Bay, Queensland. 1/m McCulloch, Records Australian Mus., vol. 13, no. 2, July 20, 1920, p. 59, pl. 12, fig. 50 (type).

Depth 2 1/2; head 3 1/2. Snout 3 1/3 in head; eye 3 4/5, 1 1/10 in snout, 1 1/2 in interorbital; jaws even; maxillary reaches 9/10 to eye, expansion 2 in eye, length 3 2/5 in head; interorbital elevated; preopercle edge minutely

Trachurus aliciolus Rafinesque, Carat. Nuov. Anim. Sicilia, (1810) p. 42, pl. 11, fig. 3 (type locality, Sicily).

Trachurus fasciatus Rafinesque, Ind. Ittiol. Sicil., (1810) p. 21, 53, (type locality, Sicily).

Seriola purpurascens Schlegel, Fauna Japonica, Poiss., pts. 7-9, (1845) p. 113, pl. 61, (type locality, Japan). — Richardson, Ichth. China and Japan, 1846, (p. 271, (Japan). — Bleeker, Verh. Batavia. Genoot. (Nal. Ichth. Japan), vol. 25, 1853 (p. 15, (reference); (Nal. Ichth. Japan), vol. 26, (1857, p. 103, (Nagasaki); Act. Soc. Sci. Ind.

51070 U.S.N.M. Hawaiian Islands.
U. S. Fish Comm. Length 150 mm.

55542 U.S.N.M. Hawaiian Islands.
Albatross Collection. Length 140 mm.

1 example. A.N.S.P. Laie Stream, Oahu.
November 1922. C. Montague Cooke Jr.
Length 50 mm.

1 example. A.N.S.P. Honolulu. Bishop
Museum. Albino. Length 335 mm.

1 example. A.N.S.P. Honolulu. Bishop
Museum. Length 288 mm.

1 example. A.N.S.P. Shortland Island.
Bishop Museum. Length 160 mm.

82829 U.S.N.M. Oahu. Wilkes
Exploring Expedition. Length 177 mm.

Acad., vol. 3, no. 3, (1857-58) p. 3 (Kioesio), p. 6 (Japan). — Jordan and Snyder, Annot. Zool. Japon., vol. 3, (1901) p. 66, (reference). — Snyder, Bull. U. S. Fish Comm., vol. 22, (1902) (1904) p. 523 (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, (1903) (1905) p. 183 (Honolulu). — Snyder, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 411 (Tokyo, Misaki, Kagoshima). — Jordan, Tanaka, Snyder, Journ. College Sci. Tokio, vol. 33, (1913) p. 127 (reference). — Fowler, Mem. Bishop Mus., vol. 10, (1928) p. 141 (Honolulu, Hawaiian Islands, Hawaii).

(Izuka and Matsuura, Cat. Zool. Spec. Tokyo Mus., Oktober, p. 158, 1920 (Tokyo). — Wakiya, Ann. Carnegie Mus., vol. 15, no. 10, p. 228, pl. 36, fig. 2, 1924 (Tokyo Bay; Uwajima; Niigata). — Oshima, Philippine Journ. Sci., vol. 26, no. 3, p. 355, March 1925 (Taihoku, Formosa).

by Cuvier gives:

depth more than 2½ in total, which 137 mm. D. XI, 10. A. III, 10. Gray on back, yellowish on silvery to golden reflections on flanks and belly. On each side 20 to 22 golden yellow lines.

Veriola tapeinometopa Bleeker, Nat. Tijds. Ned. Indie, vol. 5, (1853) p. (68) 80, (type locality, Lawajong, Solor); Act. Soc. Sci. Ind. Neerl., vol. 1, no. 5, (1856) p. 6 (Amboina); vol. 2, no. 7, (1857) p. 5 (Amboina); Ned. Tijds. Dierk., vol. 1, (1863) p. 249 (Flores); Arch. Néerl. Sci. Nat. Harlem, vol. 13, (1878) p. 37 (New Guinea). — Fowler, Mem. Bishop Mus., vol. 10, (1928) p. 142 (compiled).

Veriola proxima Poey, Mem. Hist. Nat. Cuba, vol. 2, (1860) p. 229, (type locality, Cuba).

following in scale punctures ; courses of scales often broken variably above lateral line. Iris grayish to dusky. Fins olivaceous, with more or less dusky terminally, often neutral to slate black on ventrals. Gray to mauve line on preorbital along lower eye edge.

Red Sea, Arabia, Zululand, Natal, South Africa, Mauritius, Japan, West Australia, Melanesia, Polynesia, Hawaii. Greatly variable in color. Often large examples partly or entirely bright yellow are met with. The largest fresh example I have examined was about 500 mm. long. I have admitted the identity of Pimelepterus indicus with the present species, following Klunzinger and Steindachner and Döderlein. The imperfect account

Seriola aureo-vittata (not Schlegel) Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 21, p. 450, 1871 (Red Sea).

Seriola simplex Ramsay and Ogilby, Proc. Linn. Soc. New South Wales, vol. 10, pt. 4, p. 757, April 3, 1886 (type locality, probably from Port Jackson) (error).

Seriola simplex McCulloch, Biol. Rep. Endeavour, vol. 3, pt. 3, p. 123, April 21, 1915 (type); Austral. pl. 37, fig. 3,

Mus. Mem., no. 5, pt. 2, p. 183, Sep. 10, 1929 (reference); Fishes of New South Wales, ed. 3, p. 53, 1934.

below, longest much greater than gill filaments or $1\frac{2}{3}$ in eye.

denticles, with 1 or 2 transverse series of basal elements; ~~and~~ circuli fine.

D. VII — I, 9, I, third spine $1\frac{7}{8}$ to 2 in total head length, second ray $1\frac{7}{8}$ to $2\frac{1}{3}$; A. II, 8, I, second spine $2\frac{7}{8}$ to 3, second ray 2 to $2\frac{1}{10}$; caudal $1\frac{1}{2}$ to $1\frac{4}{5}$, convex behind; least depth of caudal peduncle $2\frac{1}{3}$ to $2\frac{2}{3}$; pectoral $1\frac{3}{4}$ to $1\frac{4}{5}$; ventral $1\frac{3}{5}$ to $1\frac{4}{5}$.

Brown generally, not paler below. Round neutral black blotch above pectoral and close behind head, smaller than eye though little larger than pupil. Brown streaks from lower hind eye edge down toward preopercle angle. Iris slaty. Vertical fins all [illegible] to blackish brown, basal caudal

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Veniola cretata Fowler, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, p. 506, pl. 11 lower fig., June 10, 1904 (type locality, Padang, Sumatra).

caller, 5 above, 7 below, about 25 to 28 predorsal to snout; 4 rows of scales on cheek to preopercle ridge. Tubes in lateral line simple, small, little marked though well exposed. Scales with 9 or 10 basal radiating striae; 18 to 22 circuli.

D. VI — I, 8, I, third spine 2 2/5 to 2 1/2 in total head length, third dorsal ray 1 1/2 to 1 3/5; A. II, 8, I or 9, I, second spine 3 to 3 1/5, first ray 1 1/8 to 2; caudal 1 1/8 to 1 1/5, ends in slight median point; least depth of caudal peduncle 2 3/4 to 3; pectoral 1 4/5 to 1 5/6; ventral 2 to 2 1/8.

Light brown generally, finely spotted

Ft. 15, June 15, 1921, Gulf of Mexico,
Hook Pensacola Mortality. — Jordan,
Rec. Mem. Ste. Four Fresh Water Fishes, pp. 5,
14, 14, 37 + 2, 1931 (Pensacola). — Jordan Collected,
Brief Mem. Museum, pp. 3, 17-21,
No. 35. Aug. 1, 1931

depth 3 to 3 1/2; head 3 1/4 to 3 1/2, width 2 to 2 1/8. Snout 2 4/5 to 3 1/8 in head from upper jaw tip; eye 4 1/6 to 7 2/5, 1 1/4 to 2 in snout, 1 1/3 to 2 in interorbital; maxillary reaches 1/3 to 1/2 in eye, expansion 1 1/4 in to 1 1/5 times eye, length 2 1/8 to 2 2/5 in head from snout tip; broad bands of fine conic teeth in jaws, finer on vomer, palatines and tongue; interorbital 2 7/8 to 3, convex. Gill rakers 6 + 16 to 18, lanceolate, little longer than gill filaments or 1 2/5 in eye.

Scales 150 to 180 along and close above lateral line to caudal base; tubes about 110 in lateral line to caudal base. Scales with 5 to 8 basal radiating

striae; circuli moderate, concentric.

D. I, VI or VII — I, 31, I to 33, I, fourth erect spine 4 1/8 to 5 1/2 in total head length, first branched ray 2 1/8 to 2 1/4; A. II — I, 20, I or 21, first branched ray 2 2/5 to 2 2/3; caudal 1 1/6 to 1 1/4, well forked; least depth of caudal peduncle 5 1/2 to 5 3/5; pectoral 1 7/8 to 2; ventral 1 1/2 to 1 3/5.

Brownish above, sides and lower surfaces silvery white. Fins pale brown, lower ones whitish.

Red Sea, East Indies, Philippines, Japan, New South Wales?, Hawaii. Also in the Atlantic, Caribbean and Mediterranean Seas. The nominal Seriola simplex Ramsay and Ogilby, questionably from New South Wales, may really be the present species.

One example. Tataan Passage. February 20, 1908. Length 47 mm.

One example. D. 5332. Apo Light, S. 66° W., 18.2 miles (lat. 12° 47' 15" N., long. 120° 41' E.), Mindoro Strait. ~~In 745 fathoms~~. December 12, 1908. Length 25 mm. Surface, from driftwood.

One example. D. 5644. Makassar Island (E.), N. 4° E., 1.3 miles (lat. 5° 27' 24" S., long. 122° 38' 00" E.), Buton Strait. In 22 fathoms. December 16, 1909. Length 26 mm.

Parupeneus indicus Bleeker, Verhandel. Kon. Akad. Wetensch., Amsterdam, vol. 15, no. 3, 1875, p. 27 (Sumatra, Nias, Batu, Biliton, Java, Bali, Celebes, Timor, Ternate, Batjan, Buru, Ceram, Amboina, Waigiu, Philippines); Atlas Ichth. Ind. Néerland., vol. 2, 1877, pl. (4) 394, fig. 5. 1/m Weber, Siboga Exped., Fische, vol. 57, 1913, p. 296 (Paternoster Islands). 1/m Pellegrin, Bull. Soc. Zool. France, vol. 39, 1914, p. 227 (Nahambo, Madagascar). 1/m Barnard, Ann. South African Mus., vol. 21, pt. 2, 1927, p. 589 (Delagoa Bay).

Pseudupeneus indicus Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 276 (Apia). 1/m Jordan and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 25 (Iloilo). 1/m Evermann and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 88 (Bacon and Bulan). 1/m Steindachner,

U. S. N. M., No. 22530. Muramisaki, Japan. Japanese Government. Length 380 mm.

U. S. N. M., No. 51454. Sagami Bay. Albatross Collection (3766). In 69 – 70 fathoms. June 3, 1900. Length 13 to 35 mm. 23 examples.

U. S. N. M., No. 52722. Hawaii. Bureau of Fisheries (04063). Length 234 mm.

U. S. N. M., No. 55111. Honolulu. Albatross Collection. Length 223 mm.

U. S. N. M., No. 71046. Tokyo market. Albatross Collection. Length 190 mm.

in head, first ray 2 1/4; D. III, 6, I or 7, I, second spine 1 2/3, first ray 1 3/5 to 1 4/5; caudal 1 to 1 1/8, well forked; least depth of caudal peduncle 2 4/5 to 3 1/10; pectoral 1; ventral 1 1/4 to 1 1/3.

Back dull brownish olive, below paler with silvery shade. Six diffuse darker bands transversely on back. Iris dull gray. Ends of second to fourth membranes of spinous dorsal black; both dorsals with dusky blotch or small spot on membranes just above edge of scaly basal sheath, fins otherwise all pale.

1872

Seriola grandis Castelnau

Seriola grandis Castelnau, Proc. Zool. Acclimat. Soc. Victoria, vol. 1, p. 115, July 15, 1872 (type locality, Melbourne markets); Proc. Linn. Soc. New South Wales, vol. 3, pp. 352, 364, 1879. — Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 4, p. 540, 1881 (compiled). — Johnston, Proc. Roy. Soc. Tasmania, p. 119, 1882 (1883); p. 32, 1890 (1891). — Ogilby, Cat. Fish. New South Wales, p. 26, 1886. — Mc Culloch, Biol. Res. Endeavour, vol. 3, pt. 3, p. 121, pl. 35, fig. 1, April 21, 1915 (Port Stephens; North Reef, Queensland); Austral. Mus. Mem., no. 5, pt. 2, p. 182, Sep. 10, 1929 (reference); Fishes New South Wales, ed. 3, p. 53, pl. 21, fig. 192a, 1934.

17032. Biscay Island, Cuyos Islands. April 9, 1909. Length 55 mm. (Type. No. 70244 U. S. N. M.)

1 example. Cantaraman Island, Balabac. January 4, 1909. Length 45 mm.

1 example [D. 5179]. Romblon vicinity. March 25, 1908. Length 39 mm.

24015 [788]. Tara Island, Mindoro Strait. December 15, 1908. Length 55 mm. Dusky, with reddish brown shades. Round blackish blotch larger than pupil, midway between pectoral and lateral line.

Seriola lalandii (not Valenciennes)
Castelnau, Proc. Linn. Soc. New South Wales, vol. 3, p. 352, 1879.
— Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 4, p. 539, 1881 (Port Jackson; East Coast). — Ogilby, Cat. Fish. New South Wales, p. 26, 1886; — McCoy, Prodr. Zool. Victoria, dec. 18, pl. 172, 1889. — Waite, Mem. Austral. Mus., No. 4, pt. 1, p. 71, 1899. — Stead, Edible Fish. New South Wales, p. 89, 1908.

all with fins much paler. Ill show pale underlaid narrow line sloping down from humeral region across large dark post-humeral blotch and back over tail till midway along median body axis. Small examples with pale iris.

Natal, Philippines.

Depth 4 3/5; head 3 9/10 to 4 1/5. Snout from snout tip 2 4/5 to 3 in head; eye 6 to 6 2/3, 2 1/5 in snout, about 2 1/8 in interorbital; maxillary reaches 1/2 in eye, expansion 1 in eye, length 2 2/3 in head from snout tip; interorbital 3, well elevated. Lower gill rakers 16.

Scales small, irregular. Dorsal and anal with basal scaly sheaths anteriorly. Caudal well scaled basally, scales reaching nearly to ends of median rays. Lateral line little arched anteriorly, becomes median on side of tail over anal spines, slightly keeled on caudal peduncle.

D. VI or VII, I, 31 to 34, fourth spine 6 1/5 in total head, first branched ray 2 1/8; A. II-I, 20 to 22, first branched ray 3; caudal 1 1/5, well forked; least depth of caudal peduncle 6 1/4; pectoral 1 4/8; ventral I, 5; pectoral rays ± 20.

Upper half of body dark, lower silvery, contrasted. In life yellow stripe from behind eye median along side of body. Fins without definite markings. Length 25 mm to ends of median caudal rays. (McCulloch).

Queensland, New South Wales, Tasmania, Victoria, New Zealand.

Seriola nigrofasciata (Rüppell)

Homeus nigrofasciatus Rüppell, Atlas Reise nördl. Afrika, Fische, p. 92, pl. 24, fig. 2, 1828 (type locality, Massaua, Red Sea); Neue Wirbelth. Fische, p. 51, 1835 (note).

Seriola nigrofasciata Günther, Cat. Fish. Brit. Mus., vol. 2, p. 465, 1860 (Red Sea; Pinang; Pinang Sea; Amboina; Louisiades). — Playfair, Fishes of Zanzibar, p. 62, 1866 (Zanzibar). — Klunzinger, Verh. Zool. bot. Gesell. Wien, vol. 21, p. 450, 1871 (Red Sea). — Day, Fishes of India, pt. 2, p. 727, pl. 51, fig. 6, 1876 (Madras). — Macleay, Proc. Linn. Soc. New South Wales, vol. 5, p. 539, 1881 (Port Jackson). — Klunzinger, Fische Roth. Meer., vol. 1, p. 103, 1884. — Day, Fauna British

India, Fisher., vol. 2, p. 170, fig. 57, 1889. — Sauvage, Hist. Madagascar, Poiss., p. 578, 1891 (reference). — Evermann and Seale, Bull. Bur. Fisher., vol. 22, p. 63, 1906 (1907) (Bulan).

— Fowler, Journ. Bombay Nat. Hist. Soc., vol. 30, no. 4, November, 1926, p. 5, (Bombay); Proc. Acad. Nat. Sci. Philadelphia, vol. 79, 1927, p. 268 (Orion, Philippines); Mem. Bishop Mus., vol. 10, 1928, p. 142 (reference), Ann. Natal Mus., vol. 7, pt. 3, October 1934 p. 419, text-fig. 89 (Durban); Proc. Acad. Nat. Sci. Philadelphia, vol. 86, 1934, p. 443 (Durban).

— Weber and Beaufort, Fishes Indo-Austral. Arch., vol. 6, p. 295, fig. 59, 1931 (Bleeker's specimen)

12 scales above, 18 to 20 below, 50 to 73 predorsal forward above nostrils. Suprascapula entire. Scales with 6 basal radiating striae; 34 to 51 slender small apical denticles, with 6 to 8 transverse series of basal elements; circuli fine.

D. XI or XII, 12, I, fifth spine 1 9/10 to 2 in head, third ray 2 1/3 to 2 2/3; A. III, 11, I, third spine 2 1/2 to 3, second ray 2 1/8 to 2 1/5; least depth of caudal peduncle 2 to 2 1/2; pectoral 1 1/3 to 1 2/5; ventral 1 1/3 to 1 1/2; caudal 3 1/4 to 3 2/5 in combined head and body to caudal base.

Back and head above olivaceous dusky, paler on sides and lower or under surfaces soiled whitish. Longitudinally each row of scales with narrow slightly darker bands

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Zonichthys nigrofasciata Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 557, Oct. 1927 (~~East coast~~ Algoa Bay).

Seriola biotata Valenciennes, Hist. Nat. Poiss., vol. 9, p. 215, 1833 (type locality, Pondicherry). — Bleeker, Verh. Batavia. Genoot. (Nat. Schth. Bengal), vol. 25, p. 46, 1853 (reference).

depth 3 1/3 to 4; head 2 1/4 to 2 2/5, width 2 3/4 to 3. Snout 4 1/8 to 5 in head from snout tip; eye 3 1/2 to 4 1/5, greater than snout or interorbital, subequal with interorbital with age; maxillary reaches opposite hind eye edge, expansion 1 1/2 to 1 2/3 in eye, length 2 in head; band of villiform upper teeth narrow, row of fine conic lower teeth with median lateral canine in each mandibular ramus followed by 2 smaller ones, 2 long inner upper canines and narrow band or row of fine teeth on vomer and each palatine; interorbital 4 1/4 to 4 1/2, convex; preopercle ridge entire, little distinct; edge entire except 4 or 5 slight denticles at angle; preorbital entire. Gill rakers 2+12, lanceolate, with 2 to 4, more as rudiments above and

Seriola ruppelii Valenciennes, Hist. Nat. Poiss., vol. 9, p. 216, 1833 (type locality, Massaua, Red Sea).

Seriola ruppellii Bleeker, Nat. Tijds. Ned. Indië, vol. 3, p. 741, 1852 (Boeloekomba); Act. Soc. Sci. Ind. Neerl., vol. 1, no. 5, p. 6, 1856 (Amboina); vol. 2, no. 7, p. 5, 1857 (Amboina).

Seriola rüppelii Bleeker, Verh. Batavia. Genoot. (Makreel.), vol. 24, p. 73, 1852 (Batavia).

Seriola dumerili Valenciennes, Hist. Nat. Poiss., vol. 9, p. 217, 1833 (type locality, "le milieu du golfe du Bengale"). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 466, 1860 (copied). — Day, Fishes of India, pt. 2, p. 228, 1876 (note).

(1907), p. 17 (Cavite).

Pseudoamia polystigma Seale, Philippine Journ. Sci., vol. 5, no. 4, 1910, p. 274 (Sandakan, Borneo).

Lipogonichthys tortigma Jordan and Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 251, fig. 45. Lipia, Samoa

Seriola intermedia Schlegel, Fauna Japonica, Poiss., pts. 7–9, p. 116, 1845 (type locality, seas of Japan). — Bleeker, Verh. Batavia. Genoot. (Nal. Ichth. Japan), vol. 25, p. 15, 1853 (reference). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 466, 1860 (copied). — Sauvage, Hist. Madagascar, Poiss., p. 518, 1891 (reference). — Jordan and Snyder, Annot. Zool. Japan., vol. 3, p. 66, 1901 (reference). — Jordan, Tanaka, Snyder, Journ. College Sci. Tokio, vol. 33, p. 127, 1913 (reference). — Wakiya, Ann. Carnegie Mus., vol. 15, p. 230, pl. 38, fig. 1, 1924 (Kii; Nagasaki; Ryukyu).

Depth 2 1/2 to 3; head 3 to 3 2/5, width 1 3/4 to 2. Snout 3 1/10 to 3 3/4 in head from snout tip; eye 3 3/4 to 4 4/5, 1 to 1 2/5 in snout, 1 1/2 to 1 4/5 in interorbital; maxillary reaches 1/2 to 2/3 in eye, expansion 2 to 2 1/3, length 1 9/10 to 2 in head from snout tip; interorbital 2 2/5 to 3, convex; opercle with rather weak, fine, radiating striae. Gill rakers 1 + 8 or 9, short, low points, mostly rudimentary.

Scales 90 in lateral line to caudal base; 16 above, 20 below, 25 predorsal forward to occiput. Scales with 5 weak basal radiating striae; circuli complete, moderate.

D. V to VII — I, 32, I to I, 33, I, third spine 4 1/8 to 5 1/10 in total head length, first branched ray 1 1/2 to 2;

D. I, II, 15, I or II, 16, I, first branched ray 2 1/3 to 2 2/5; least depth of caudal peduncle 4 1/2 to 5 1/5; pectoral 1 1/2 to 1 3/4; ventral 1 1/8 to 1 1/4; caudal 3 3/5 to 4 1/8 in rest of fish, deeply lunate.

Dusky brown generally, with grayish tinge on body above and under surface soiled brownish. Back with 5 broad, rather oblique, obscure, dusky cross bands. Fins largely dusky, soft dorsal tip whitish. Pectoral pale brown. Ventral blackish. Iris brown, with yellowish tinge.

Red Sea, Zanzibar, Natal, South Africa, Madagascar, India, Ceylon, Malaya, East Indies, Philippines, China, Japan, New South Wales, Melanesia.

11885. Manila market. March 14, 1908. Length 160 mm.

A. N. S. P., one example. Bombay. Bombay Natural History Society. 1925. Length 240 mm.

8 pt. Leaded

Follow—Incl Caps

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Johnius belengerii (Cuvier)

Corvina belengerii CORVINA, Hist. Nat. Poiss., vol. 5, 1830, p. 120 (Malabar).

Corvina belangerii VALENCIENNES, Voy. Ind. Orient. Bélanger, Zool., 1834, p. 357 (East Indies). - GUNTHER, Cat. Fish. Brit. Mus., vol. 2, 1860, p. 303 (Sea of Pinang). - DAY, Fishes of Malabar, 1865, p. 54. - ELERA, Cat. Fauna Filip., vol. 1, 1895, p. 502 (Luzon, Santa Cruz, Cavite).

Corvina belengeri DAY, Proc. Zool. Soc. London, 1870, p. 684 (Andamans).

Sciaena (Corvina) belangeri STEINDACHNER, Verh. zool. bot. Ges. Wien, vol. 16, 1866, p. 771 (Calcutta).

Sciaena belengeri DAY, Fishes of India, pt. 2, 1876, p. 191, pl. 44, fig. 5 (India, Bombay). - JOHNSTONE, Fasc. Malayensis Annandale and Robinson Zool. 2, 1903, p. 293 (Patani and Jhering coasts). - WEBER, Nova Guinea vol. 9, pt. 3, 1913, p. 568 (Lorentz River, Varen River, Sermowai River). - NORMAN, Ann. Mag. Nat. Hist., ser. 9, vol. 9, 1922, p. 321( ). - BARNARD, Ann. South Afric. Mus., vol. 21, pt. 2, 1927, p. 572 (Natal coast).

Sciaena belangeri DAY, Fauna Brit. India, vol. 2, 1889, p. 120. - REGAN, Trans. Zool. Soc. London, vol. 20, pt. 6, 1914, p. 276 (Mimika River, New Guinea).

Johnius belengeri CANTOR, Journ. Asiat. Soc. Bengal, vol. 18, pt. 2, 1849, p. 1047 (Pinang, Malayan Peninsula, Singapore). - BLEEKER, Nederland. Tijdschr. Dierk., vol. 4, 1874, p. 118 (China); Verh. Kon. Akad. Wet. Amsterdam, ser. 3, vol. 14, 1874, p. 46 (Sumatra, Nias, Pinang, Singapore, Banka, Java, Borneo, Philippines); Atlas Ichth. Ind. Néerland., vol. 9, 1877, pl. (4)387, fig. 1.

Genus Naucrates Rafinesque

Naucrates Rafinesque, Carrat. Nuov. Anim. Sicil., (1810) p. 43. (Type Centronotus fanfarus Rafinesque, monotypic.)

Centronotus (not Schneider 1801) Lacépède, Hist. Nat. Pois., vol. 3, (1802) pp. 309, 311, (Type Gasterosteus ductor Linnaeus, designated by Jordan and Evermann, Genera of Fishes, pt. 1, (1917) p. 62,)

Pompilus (not Schneider 1784, Fabricius 1798 in invertebrates) Swinding, Lehrb. Naturg. Fisch., (1832) p. 108, (Type Gasterosteus ductor Linnaeus,)

Wiss. Wien, Math.- naturwiss. Classe, vol. 80, pt. 1, 1879, p. 357, pl. 7 (King George & Sound). — Steindachner and Döderlein, Denkschr. Akad. Wiss. Wien, math.- naturwiss. Classe, vol. 48, pt. 1, 1884, p. 21 (Tokyo).

Pemilepterus indicus Macleay, Proc. Linn. Soc. New South Wales, vol. 9, 1884, p. 15 (copied Klunzinger). (Error.)

Kyphosus indicus Jordan and Snyder, Annot. Zool. Japon., vol. 3, 1901, p. 80 (Yokohama). — Mc Culloch, Records Australian Mus., vol. 13, no. —, July 20, 1920, p. 56 (note on Klunzinger's figure).

Chaetodon cyprinoides Günther, Cat. Fishes British Mus., vol. 1, 1859, p. 498. No locality. (Name in text.)

? Pimelepterus elegans Peters, Monatsber. Akad. Wiss. Berlin, 1869, p. 707. Mazatlan, Mexico.

Isanclerus Valenciennes, Hist. Nat. Poiss., vol. 9, (1833) p. 247, (Type Isanclerus compressus Valenciennes, designated by Jordan and Evermann, Genera of Fishes, pt. 1, (1917) p. 142.)

Xystophorus Richardson, Voy. Erebus and Terror, Fishes, (1844. p. 52, Atypic. (Type Gasterosteus ductor Linnaeus.)

Beach, Hecker, Johnston Islands, Oahu); Proc. Acad. Nat. Sci. Philadelphia, 1929 (1930), p. 645 (Honolulu, Laie Stream, Shortland Island).

Cyphosus fuscus Gilchrist and Thompson, Ann. South African Mus., vol. 6, 1908-11, p. 174 (Durban). 1/m Regan, Ann. Natal Govt. Mus., 1908, p. 245 (Kosi Bay). — Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 324 (compiled). 1/m Thompson, Marine Biolog. Rep. South Africa, no. 3, 1916, p. 113 (references).

Xyster nigrescens (Lacépède) Cuvier, Hist. Nat. Poiss., vol. 7, 1831, p. 269 (name in synonymy). Cape of Good Hope.

Pimelepterus indicus (Kuhl and Van Hasselt) Cuvier, op. cit., vol. 7, 1831, p. 270. No locality (Java?). 1/m Schlegel, Fauna Japonica, Poiss., pts. 5-6, 1844, p. 86 (Japan). 1/m Klunzinger, Sitz. Ber. Akad.

Body oblong, compressed, fusiform. Head compressed. Snout rather obtuse. Eye rounded, little advanced in head. Mouth terminal, moderate. Maxillary reaches eye, without supplemental bone. Premaxillaries protractile. Teeth minute, conic, simple, in bands in jaws, on vomer and palatines. Gill rakers moderate, lanceolate. Scales minute. Lateral line little arched anteriorly. Dorsal spines low, weak, membrane only present in very young, disappear with age. Caudal well forked. Side of caudal peduncle with fleshy keel. Pectoral short, broad. Ventral about equals pectoral, inserted slightly behind pectoral.

Pelagic fishes, probably a single species.

Naucrates ductor (Linnaeus)

(Gasterosteus ductor Linnaeus, Syst. Nat., ed. 10, pt. 1, (1758) p. 295 (type locality: "In pelago [illegible], satelles aquali"); ed. 12, pt. 1, p. 489, 1766 (copied). — Bonnaterre, Tabl. Ichth., p. 136, pl. 57, fig. 223, 1788 (Mediterranean). — Schoepf, Beob. Berlin, vol. 2, p. 167, 1788 (high seas off coast of America). — Gmelin, Syst. Nat. Linnaeus, pt. 1, p. 1324, 1789 (copied). — Walbaum, Artedi Pisc., vol. 3, p. 447, 1792 (copied). — Forster, Fauna Indica, p. 15, 1795 (reference).

Pimelopterus fuscus Klunzinger, Verhandel. zool. bot. Gesell. Wien, vol. 20, 1870, p. 796 (Kosseir, Red Sea). (Error.)

Kyphosus fuscus Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, 1903 (1905), p. 248 (Honolulu). 1/m Regan, Ann. Durban Mus., vol. 2, 1917–20 (1918), p. 76 (Natal). 1/m Fowler, Bull. Bishop Mus., No. 22, 1925, p. 26 (Honolulu). 1/m Fowler and Ball, Bull. Bishop Mus., No. 26, 1925, p. 15 (Necker, Laysan, Lisianski, Johnston Islands). 1/m Fowler, Bull. Bishop Mus., No. 38, 1927, p. 15 (Washington, Howland, Baker Islands). 1/m Barnard, Ann. South African Mus., vol. 21, pt. 2, 1927, p. 645, pl. 27, fig. 2 (False Bay, Natal, Zululand). 1/m Fowler, Mem. Bishop Mus., vol. 10, 1928, p. 222, pl. 17C (Honolulu, Marcus Island, Lae

Scomber auctor Bloch, Naturg. Ausland. Fische, vol. 7, p. 60, pl. 338, 1793 (Antilles; Mediterranean; Nica; South seas; East Indies; Cape of Good Hope). — Schneider, Syst. Ichth. Bloch, p. 32, 1801 (reference). — Shaw and Nodder, Natural. Miscellany, vol. 13, pl. 498, 1801 (Mediterranean; Atlantic).

Apogonichthys

~~Amia~~ uninotatus (Smith and Radcliffe)

Amia uninotata Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 41, 1912, p. 436, pl. 34, fig. 3. Bibiray Island and Jara Island, Philippines.

Amia ocellata (non Weber). Von Bonde, Fisher. Mar. Surv. South Africa, Spec. Rep., no. 1, 1923, p. 14, pl. 1, fig. 2. Natal coast, 27 fathoms.

Apogon dispar Barnard, Ann. South Afric. Mus., vol. 21, 1927, p. 522 (on Von Bonde).

Inauratus ductor Cuvier, Hist. Nat. Poiss., vol. 8, p. 312, pl. 232, 1831 (Marseilles; Genoa; Naples). — Swainson, Nat. Hist. Animals, vol. 2, p. 411, 1839 (Sicily; Mediterranean). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 374, 1860 (Polperro; Falmouth; Madeira; Cape Seas; South Pacific; North west coast of America). — Playfair, Fishes of Zanzibar, p. 63, 1866 (east coast of Africa). — Schmeltz, Cat. Mus. Godeffroy, No. 4, p. 17, 1869 (South Seas). — Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 21, p. 445, 1871 (Red Sea). — Bleeker, Ned. Tijds. dierk., vol. 4, p. 132, 1871 (1872) (reference). — Schmeltz, Cat. Mus. Godeffroy, No. 5, p. 17, 1874 (South Sea in lat. 2° S., long. 22° W.). — Bleeker, Res. Faune Madagascar, pt. 4, p. 98, 1874 (reference).

— Günther, Journ. Mus. Godeffroy, vol. 5, pt. 11, p. 137, 1876 (all tropical seas). — Day, Fishes of India, pt. 2, p. 229, pl. 51 A, fig. 2, 1876 (Indian Ocean).

— Lütken, Kon. Danske Videnskb. Selsk. Skrift. Kjöbenhavn, vol. 12, no. 6, p. 504, pl. 3, figs. 14–15, 1880 (metamorphosis).

— Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 4, p. 559, 1881 (Port Jackson).

— Klunzinger, Fische Roth. Meer., vol. 1, p. 102, 1884 (Red Sea).

— Day, Fauna British India, Fishes, vol. 2, p. 172, fig. 59, 1889.

2645 [D. 5361]. Corregidor Light, S. 89° W., 7.3 miles (14°24' 15" N., 120°41' 30" E.), Manila Bay, Luzon. In 12 fathoms. February 8, 1909. Length, 84/75 mm. [1137]. 3 examples. General color dusky brown, darker on head, lighter below, with metallic tints. Upper part of spinous dorsal blackish. Row of dusky brown spots near bases of second dorsal membranes and other less distinct spots of same color scattered over membranes further out. Blotches composed of very fine blackish spots in the membranes of the anal and outer part of anal membranes and rays yellowish. Caudal membranes dusky. Pectoral rosy hyaline. Ventral margins white.

5 examples. Manila market. December 4, 1908. Length 104 to 126 mm.

— Fowler, Proc. Acad. Nat. Sci. Philadelphia, p. 62, Jan. 1905 (Mediterranean). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 182, 1903 (1905) (Honolulu).

— Weber, Siboga Exped., vol. 52, Fische, p. 392, text fig. 77 (young), 1913 (Banda Sea).

terminally, each membrane from base with 4 or 5 whitish spots and subbasal dark basal area darker or dusky. Caudal grayish terminally. Anal whitish with several rows of deep brown spots subbasally. Paired fins uniformly pale.

India, East Indies, Philippines.

— Norman, Ann. Mag. Nat. Hist., ser. 9, vol. 9, p. 321, 1922 (Natal).

— Fowler, Bull. Bishop Mus., No. 22, p. 25, 1925 (Honolulu). — Fowler and Ball, Bull. Bishop Mus., No. 26, p. 12, 1925 (Laysan). — McCulloch, Rec. Austral. Mus., vol. 15, p. 34, pl. 1 (young), 1926.

— Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 560, Oct. 1927 (off Table Bay, Agulhas Banks, Natal coast). — Fowler, Mem. Bishop Mus., vol. 10, p. 142, figs. 35 – 36, 1928 (Honolulu; Laysan; Oahu).

— McCulloch, Austral. Mus. Mem., No. 5, p. 2, p. 181, Sep. 10, 1929 (reference).

depth 2 2/3 to 2 3/4; head 2 1/3 to 2 1/2, width 2 2/5 to 2 1/2, snout 5 to 5 2/3 in head from snout tip; eye 4 1/5 to 4 1/4, greater than snout or interorbital or subequal with latter; maxillary reaches opposite hind pupil edge till beyond hind eye edge, expansion 1 1/4 to 1 1/2 in eye, length 1 7/8 to 2 in head; preopercle and preorbital entire. villiform teeth in bands in jaws and on vomer, palatines toothless;

Gill rakers 3 + 11, lanceolate, longer than gill filaments or 1 = in eye.

Scales 23 or 24 in lateral line to caudal base and 3 or 4 more on latter, 2 above, 6 below, 4 or 5 predorsal, 2 rows cover cheek. Tubes in lateral line rather large, moderately exposed and each with small basal scale. Caudal covered with small scales basally, otherwise finely naked. Scales with 18 to 22 basal radiating striae; 90 to 110 apical

— Weber and Beaufort, Fishes Indo Austral. Archip., vol. 6, p. 300, figs. 60–62, 1931 (Banda Sea).

— McCulloch, Fishes of New South Wales, ed. 3, p. 53, pl. 21, fig. 191a, 1934.

Amia glaga Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 100 (Singapore, Bamba, Java).

Micronus gracilis Jordan and Veale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 17 (Manila). — Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 255 (Manila).

Gasterosteus antecessor Daldorf, Skriv. Nat. Selsk. Kjöbenhavn, vol. 2, pt. 2, p. 166, 1793 (type locality,

Scombrum Koelreuteri Schneider, Syst. Ichth. Bloch, p. 570, 1801 (on Scomber Koelreuter, Nov. Comm. Petropol., vol. 9, p. 464, pl. 10, figs. 4-5, 1762, type locality not given).

Centronotus conductor Lacépède, Hist. Nat. Poiss., vol. 3, pp. 309, 311, pl. 10, fig. 3, 1802 (type locality, "des mers").

Naucrates Fanfarus Rafinesque), Car. Nuov. Animal. Sicil., p. 44, pl. 12, fig. 1, 1810 (type locality, Sicily.

Naucrates indicus Lesson, Voy. Coquille, zool., vol. 2, pt. 1, (1830) p. 147, pl. 14, fig. 2, (type locality, New Ireland). — Valenciennes, Hist. nat. Poiss., vol. 8, (1831) p. 326, (Amboina; Malabar; Pouss.); Règne Animal Cuvier, ed. ill., (1839) pl. 54, fig. 1, — Richardson, Ichth. China and Japan, (1846) p. 269, (China seas). — Bleeker, Verh. Batavia. Genoot. (Nat. Ichth. Jap.), vol. 25, (1853) p. 14 (reference); (Nat. Ichth. Bengal), vol. 25, (1853) p. 42 (reference). — Kner, Reise Novara, Fische, p. 145, 1865 (Ceylon). — Iwahija, Ann. Carnegie Mus., vol. 15, p. 232, pl. 38, fig. 2, 1922-4 (Imijako; Kii; Nagasaki; Ryukyu).

on each palatine; interorbital 3 in head, convexly elevated; preopercle and preorbital serrated.

Scales 63 along above lateral line to caudal base, 5-2 in lateral line; 10 above, 20 below; predorsal scales extend forward opposite nostrils; cheeks scaled.

D. XI, 12, fifth spine 2 1/2 in head, first ray 2 4/5; A. III, 11, third spine 3 2/3, first ray 2 1/2; least depth of caudal peduncle 2; pectoral 1 3/5; ventral 1 3/5; caudal 3 in combined head and body to caudal base.

Dark silver, with longitudinal stripes extending along sides between each row of scales. Head silver and bronze. Bronze stripe across eye, another over cheeks, between which brilliant silver area. Opercle edge

Naucrates noveboracensis Cuvier, Hist. Nat. Poiss., vol. 8, (1831) p. 325, (type locality, New York). (Jan. 1832).

Seriola dussumieri Valenciennes, Hist. Nat. Poiss., vol. 9, (1833) p. 217, (type locality, Gulf of Bengal). — (in part) Günther, Cat. Fish. Brit. Mus., vol. 2, (1860) p. 466, (copied). — Gill, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 262 (name only). — Day, Fishes of India, pt. 2, (1876) p. 228, (Madras museum specimen).

Seriola dussumierii Bleeker, Verh. Batavia. Genoot. (Nat. Verh. Bengal), vol. 25, (1853) p. 346, (reference).

vol. 13, no. 2, July 20, 1920, pl. 12, fig. 2 (Sydney). 1/m Waite, Records South Australian Mus., vol. 2, no. 1, April 23, 1921, p. 113, fig. 173. 1/m McCulloch, Fishes New South Wales, 1927, p. 62, pl. 25, fig. 220a.

Pachymetopon grande (not Günther) Macleay, Proc. Linn. Soc. New South Wales, vol. 5, 1881, p. 406 (Port Jackson).

Pimelepterus meridionalis Ogilby, Proc. Zool. Soc. London, 1886, p. 539. Port Jackson, Australia.

Pimelepterus drewi Hector, Trans. New Zealand Institute, vol. 19, 1887, p. 590. (name only.)

Depth 2 1/10 to 3 with age; head 3 2/5; width 2 1/2. Snout 3 1/5 in head; eye 4, 1 1/4 in snout, 1 2/3 in interorbital; jaws even; maxillary reaches eye, length 3 1/2 in head; teeth uniserial, angular patch on vomer and small patch on

Seriola succincta Valenciennes, Hist. Nat. Poiss., vol. 9, (1833) p. 218, (type locality, ~~South of~~ Between Cape of Good Hope and St. Helena).

Naucleres compressus Valenciennes, Hist. Nat. Poiss., vol. 9, (1833) p. 249, pl. 263 (type locality, Moluccas).

Naucleres abbreviatus Valenciennes, Hist. Nat. Poiss., vol. 9, (1833) p. 251, (type locality, Atlantic).

Naucleres abbreviatus Valenciennes, op. cit., p. XVIII, in table, 1833.

Naucleres brachycentrus Valenciennes, Hist. Nat. Poiss., vol. 9, (1833) p. 253, (type locality, Moluccas).

Naucleres triacanthus Valenciennes, Hist. Nat. Poiss., vol. 9, (1833) p. 253, (type locality, Atlantic).

Naucleres annularis Valenciennes, Hist. Nat. Poiss., vol. 9, (1833) p. 254, (type locality, Between Cape of Good Hope and Saint Helena).

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Kyphosus sydneyanus (Günther)

Pimelepterus sydneyanus Günther, Ann. Mag. Nat. Hist., series 5, vol. 18, 1886, p. 368! Port Jackson. 1/m Ogilby, Edible Fishes New South Wales, 1893, p. 40, pl. 16. Kyphosus sydneyanus Ogilby, Handbook of Sydney, 1898, p. 130. 1/m Waite, Mem. New South Wales Club, Nat. 1904, p. 26. 1/m Stead, Fishes of Australia, 1906, p. 91 (New South Wales); Edible Fishes New South Wales, 1908, p. 53. 1/m Zietz, Trans. Royal Soc. South Australia, vol. 23, 1909, p. 267. 1/m Waite, Records Canterbury Mus., vol. 1, pt. 4, 1912, p. 319; Trans. New Zealand Institute, vol. 45, 1913, p. 219. 1/m Mc Culloch, Records West Australian Mus., vol. 1, pt. 3, 1914, p. 219. 1/m Roughley, Fishes of Australia, 1916, p. 58, pl. 15 (New South Wales, South Australia, New Zealand). 1/m Mc Culloch, Records Australian Mus.,

Naucleras leucurus Valenciennes, Hist. Nat. Poiss., vol. 9, (1833) p. 255, (type locality, ~~South of~~ Between Cape of Good Hope and St. Helena).

Naucleras cyanophrys Swainson, (Hist. Nat. Animals, vol. 2, (1839) p. 412, (type locality, Palermo, Sicily).

Naucleras serratus Swainson, Nat. Hist. Animals, vol. 2, (1839) p. 413, (~~type locality~~, on Bloch).

Thynnus prompilus Gray, Cat. Fish. Gronow; (1854) p. 123, (type locality, "mari Hispanico, Americano, Mediterraneo, naves & pelago venientes in portum lambendo sequitur").

Analysis of the species 6 1/2 inches

a.' Kyphosus. Spinous dorsal higher than soft dorsal.

b.' D. XI, 12; A. III, 11; depth 2 to 3; preorbital scaleless.

c.' Scales 63 along above lateral line to caudal base. sydneyanus.

c.² Scales 76 to 80 along above lateral line to caudal base. bigibbus.

b.² D. XI, 13; A. III, 12; depth 2 1/2; preorbital naked. oblongus.

b.³ D. XI, 14 or 15; A. III, 13 or 14,

d.' depth 2 to 2 1/4; scales 70 to 75 along above lateral line; preorbital naked. vaigiensis.

d.² depth 2 1/2, scales 80 to 88 along above lateral line; preorbital finely scaled. bleekeri.

a.² Diplotaxis. Soft dorsal and anal higher than either spinous fin; D. XI, 12; A. III, 11. cinerascens.

Case 13 mm only

1202

Isacrates polysarcus Fowler,
Proc. Acad. Nat. Sci. Philadelphia,
p. 62, fig. 3, Jan. 1905 (type locality,
West coast of Mexico).

denticles, with 5 or 6 transverse series of basal elements; ~~xxxxx~~ circuli fine.

D. VII — I, 9, I, fifth spine 2 2/3 to 3 2/5 in total head length, fifth branched ray 1 3/5 to 1 2/3; A. II, 8, I, second spine 3 3/4 to 4, third ray 1 4/5 to 1 7/8; caudal 1 2/3 to 1 1/2, convex behind; least depth of caudal peduncle 2 to 2 1/3; pectoral 1 2/3 to 1 3/4; ventral 1 2/3 to 1 3/4.

Back brown, sides and below paler to light; with silvery white reflections. Sides with 7 rather diffuse longitudinal dark bands, wide as interspaces which appear well contrasted and following along punctures of scales. Opercle with diffuse neutral dusky or gray shade. Iris pale yellowish white. Spinous dorsal with terminal half blackish. Soft dorsal with grayish

Depth 3 3/4 to 4 1/6; head 2 7/8 to 4, width 1 3/4 to 1 4/5. Snout 3 1/4 to 3 1/3 in head; eye 3 7/8 to 5 4/5, 1 3/4 to 2 in snout, 1 1/2 to 2 in interorbital; maxillary reaches 1/4 in eye, expansion 1 1/2 to 2, length 2 7/8 to 3 2/5 in head; interorbital 2 4/5 to 3, convex. Gill rakers 6 + 18 ~~or~~ to 19, lanceolate, about 4/5 of eye.

Scales minute. Head naked, except cheeks, postocular region, opercle above and occipital region. Caudal base scaly. Lateral line slightly arched anteriorly, axial along side of body. Caudal peduncle wide, with broad fleshy keel each side, less developed in young.

D. III to VI, I or II, 25 to 28, spinous dorsal very low, first branched ray 1 7/8 to 2 in total head length;

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Back brown or drab brown, also most of sides, under surface whitish. Head with pale streak from above eye along upper edge of predorsal and back far as soft dorsal at least; second broader pale or whitish streak from upper hind eye edge to bases of last dorsal rays; third white band from lower front preorbital edge to lower eye edge, front then continued from lower hind eye edge above pectoral base and back to middle of caudal base, widest of pale bands, in some specimens yellowish white in color. With age lowest broad band most distinct especially on flanks. Iris yellowish brown. Dorsals caudal and pectorals pale brown, last with narrow basal transverse dusky line or bar. Ventrals and anals pale yellowish white.

East Indies, Philippines, Micronesia, Melanesia, Polynesia. My small examples agree largely with Bleeker's figure of Pentapus bifasciatus on his plate (LX) 294, though they differ in that the third pale band begins narrowly on the snout, continues along the lower eye edge with its lower edges more or less bounded by dark color similar to that on the back. With age the line or band becomes very narrow on the head and either fades in preserved examples or is absent. Bleeker's Pentapus xantopleura represents the adult. The dark bar across the pectoral base is distinctive at all ages. The young also have a median pale predorsal line.

11293. Alimango Bay, Burias Island. March 5, 1909. Length 202 mm.

19363, 19364. Beach near Caiholo River mouth, Malugan Bay, Palawan. December 29, 1908. Length 105 to 107 mm.

18479 to 18483, 21926. Bolalo Bay, Palawan. December 21, 1908. Length 86 to 128 mm. 7 examples.

9412. Busin Harbor, Burias Island. April 23, 1908. Length 165 mm.

11050. Busin Harbor. March 8, 1909. Length 233 mm.

11709, 21938. Cagayan, Sulu Island. January 8, 1908. Length 98 to 192 mm.

A. II, II, 15 or 16, first branched ray 2 2/5 to 2 1/2; caudal 1 to 1 1/8, deeply forked; least depth of caudal peduncle 4 1/4 to 5; pectoral 1 1/2 to 1 3/4; ventral 1 2/5 to 1 2/3.

Dark bluish above, pale to whitish below. Sides with 5 to 7 broad dark vertical bands, purple green in life, blackish in preserved specimens, extending on fins and much more contrasted in young. Iris whitish. Fins gray. Caudal dark gray, tips of lobes whitish.

Red Sea, Zanzibar, Natal, South Africa, Madagascar, Mauritius, India, Ceylon, East Indies, China, Japan, Queensland, South Australia, Victoria, New South Wales, Tasmania, New Zealand, Hawaii. Also tropical and subtropical Atlantic.

134789 150

Heterodon [illegible] BLEEK., Natuur. Genesk. Arch. Nederland. Indië, vol. 2, 1845, p. 523, (Batavia) (Nomen nudum).

Heterognathodon bifasciatus BLEEKER, Verh. Batav. Genootsch. (Sciaen.), vol. 23, 1850, p. 30, (Sumbawa). - GÜNTHER, Cat. Fish. Brit. Mus., vol. 1, 1859, p. 364 (copied). - SCHMELTZ, Cat. Mus. Godeffroy, No. 4, 1869, p. 14 (Pelew Islands). - KÁROLI, Termész. Füzetek, Budapest, vol. 5, 1881, p. 154 (Singapore). - MEYER, Anal. Soc. Espan. Hist. Nat., Madrid, vol. 14, 1885, p. 15 (North Celebes; Ternate; Kordo, Mysore).

Heterognathodon bifasciatum SCHMELTZ, Cat. Mus. Godeffroy, No. 7, 1879, p. 40 (Pelew Islands). - PÖHL, Cat. Mus. Godeffroy, No. 9, 1884, p. 29 (East Indies).

Pentapus bifasciatus BLEEKER, Atlas Ichth. Ind. Néerland., vol. 7, 1873-1876, pl. (16) 294, fig. 5.

Heterognathodon xanthopleura BLEEKER, Nat. Tijds. Nederland. Indie, vol. 1, 1850, p. 101, (Batavia. - SCHMELTZ, Cat. Mus. Godeffroy, No. 7, 1879, p. 40 (Samoa).

Heterognathodon xanthopleuros MEYER, Anal. Soc. Espan. Hist. Nat., Madrid, vol. 14, 1885, p. 15 (Macassar, Celebes).

Pentapus xanthopleura KNER, Reise Novara, Fische, 1865, p. 60 (Madras). - STEINDACHNER, Sitz. Ber. Akad. Wiss. Wien, Math.-nat. Kl., vol. 60, pt. 1, 1870, p. 559 (Singapore). - BLEEKER, Atlas Ichth. Ind. Néerland., vol. 7, 1873-1876, pl. (32)310, fig. 3.

Heterognathodon microdon BLEEKER, Nat. Tijds. Nederland. Indië, vol. 4, 1853, p. 464, (Batavia. - GÜNTHER, Cat. Fish. Brit. Mus., vol. 1, 1859, p. 366 (Louisiades).

Pentapus microdon BLEEKER, Atlas Ichth. Ind. Néerland., vol. 7, 1873-1876, pl. (20)298, fig. 1; vol. 8, 1876-1877, p. 101 (Java; Amboina).

A. N. S. P., No. 11379. West coast of Mexico. Dr. William H. Jones. Length 168 mm. Type of Saucrates polysarcus.

Apogonichthys glaga (Bleeker)

Apogon glaga Bleeker, Verh. Batav. Genootsch. (Perc.), vol. 22, 1849, p. 29. Batavia, Cheribon, Tjilatjap, Samarang. — Day, Fishes of India, pt. 1, 1875, p. 62, pl. 16, fig. 10; Fauna Brit. India, vol. 1, 1889, p. 498.

Apogonichthys glaga Bleeker, Verh. Batav. Genootsch., no. 4, vol. 26, 1857, p. 57. (Nagasaki, Java, Singapore). — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 247 (copied). — Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, pl. (33) 311, fig. 1. — Károli, Termesz. Füzetek, Budapest, vol. 5, 1882, p. 152 (Varangoon, Singapore). — Elera, Cat. Fauna Filip., 1895, p. 471 (Luzon, Cavite, Santa Cruz). — Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, 1901, p. 893 (copied).

Genus Elagatis Bennett

Elagatis Bennett, Narrat. Whaling Voy., vol. 2, p. 283, p. 283, 1835. (Type Seriola bipinnulata Quoy and Gaimard, monotypic.)

Seriolichthys Bleeker, Nat. Tijds. Ned. Indie, vol. 6, 1854, p. 194. (Type Seriola bipinnulata Quoy and Gaimard, monotypic.)

Decaptus Poey, Mem. Hist. Nat. Cuba, vol. 2, p. 374 (391), 1856-58. (Type Seriola pinnulata Poey, monotypic.)

Trex Valenciennes, Compt. Rend. Acad. Sci. Paris, vol. 54, p. 1205, June 1862. (Type Trex vidicus Valenciennes, monotypic.)

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1957

Genus Atractoscion Gill

Atractoscion Gill, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 18. Type Otolithus aequidens Cuvier, monotypic.

Body elongate, elliptical, compressed. Head conic. Snout conic, with pores. Eye small, advanced. Maxillary not slipping below preorbital. Mouth terminal, wide, oblique, lower jaw protruding. Chin without pores. No barbels. Bands of villiform teeth in jaws, with enlarged series in both though no canines. Opercle with 2 weak spines. Preopercle feebly denticulate in young, entire with age. Gill rakers few, very short and robust, especially with age. Pseudobranchiae present. Pyloric coeca 5. Scales small, adherent. Head nearly entirely scaly. Dorsals 2, deeply notched, spines 11, rays 27 to 31. Anal with 2 feeble spines, rays 8 or 9,

Body long, slender, slightly compressed, abdomen rounded. Head long, pointed, with slight occipital keel. Snout rather long, conic. Eye small, little advanced in head. Mouth rather small, terminal. Premaxillaries protractile. Maxillary posteriorly triangular, with elongate supplemental bone, slips mostly inside preorbital, not quite reaching eye. Villiform teeth in jaws, on vomer and palatines, none on tongue. Preopercle and opercle entire. Gill opening wide, extended forward below eye, membranes not united, free from isthmus. Gill rakers moderate. Branchiostegals 7. Scales partly small, cycloid, somewhat larger ones with hind edges truncate or rounded and slightly denticulate,

surrounded by smaller cycloid ones. More lanceolate scales on cheeks, postorbital, laterally on vertex, and on top of operkle, head otherwise naked. Lateral line slightly curved, becomes straight above anal origin, thence continued to caudal base; scutes or caudal keel, at least prominent one, wanting. First dorsal with 6 rather low, connected spines, depressible in groove. Second dorsal and anal long, anteriorly somewhat elevated, with basal scaly sheath, both posteriorly with distant 2 rayed finlet. Two small, free, predanal spines. Caudal deeply forked, lobes acute. Pectoral short, broad. Ventral inserted little behind pectoral base, superficially depress in median groove.

Species two, one in the Eastern Pacific.

Elagatis bipinnulatus (Quoy and Gaimard)

Seriola bipinnulata Quoy and Gaimard, Voy. Uranie, Zool., p. 363, pl. 61, fig. 3, 1824 (type locality, "Iles des Papous").
— Valenciennes, Règne Animal, Cuvier, ed. Ill., Poiss., pl. , 1839. — Jenyns, Zool. Voy. Beagle, Fish, p. 72, 1842 (Keeling Island, Indian Ocean).

1956

2 examples. A.N.S.P. Bombay, India.

Prof. F. Hallberg. 3 Length 175 to 275 mm.

Elagatis bipinnulatus (L. & D.
Bennett, Narrat. Whaling Voy.,
vol. 2, p. 283, 1840 (N. 6° S. 80°,
Pacific Ocean; Indian Archipelago;
Equator 140° E.).
— Fowler, Journ. Acad. Nat. Sci.
Philadelphia, ser. 2, vol. 12, p. 507, June
10, 1904 (Padang); Proc. Acad. Nat. Sci. Philadelphia,
~~vol. 57, p. 65, Jan. 1905 (Padang)~~
vol. 57, p. 65, Jan. 1905 (Padang material).
— Jordan and Evermann, Bull. U.
S. Fish Comm., vol. 23, pt. 1, p. 185,
1903 (1905) (Honolulu). — Seale,
Occas. Pap. Bishop Mus., vol. 4,
no. 1, p. 30, fig. 10, 1906 (Shortland
Island). — Jordan and Jordan,
Mem. Carnegie Mus., vol. 10, no. 1,
p. 37, December 1922 (Honolulu).
— Stead, Addit. Fish Fauna New South
Wales, p. 17, 1907. — Weber, Siboga Exped.,
vol. 57, p. 393, 1913 (Banda).

Fische,

to 2 3/5 in head, first ray 2 1/2 to 3;
A. II, I, I, second spine 3 1/2 to 3 7/8?,
first ray 2 to 2 1/4; caudal 1 to 1 1/10, cuneate,
ends in median long slender point;
least depth of caudal peduncle 3 3/5 to 3 2/3;
pectoral 1 1/3 to 1 2/5; ventral 1 3/5 to 1 4/5.

Brown generally, but slightly paler
below. Iris grayish. Each scale on body
with slightly paler spot. Vpinnous dorsal
largely dusky to blackish, base pale
or whitish. Soft dorsal darks, dusky.
Caudal darks brown, especially posteriorly.
Anal and paired fins pale.

Bombay, China.

86104 U.S.N.M. Tsanking. C. Ping.
Length 230 mm.

97063 U.S.N.M. Shanghai. A. de C.
Towerby. June 1927. Length 117 to 255 mm.
3 examples. All have Fl. II, I, I.

— Klunzinger, Verh. zool. bot. Ges. Wien, vol. 21, p. 452, 1871 (Red Sea).

— Bleeker, Mem. Faune Madagascar, pt. 4, p. 100, 1874 (reference).
— Day, Fishes of India, pt. 2, p. 228, pl. 51, fig. 1, 1876 (Madras).

— Day, Fishes of India, Suppl., p. 789, 1888; Fauna British India, Fishes, vol. 2, p. 171, fig. 58, 1889.
— Sauvage, Hist. Madagascar, Poiss., p. 518, 1891 (reference).

— Gilchrist and Thompson, Ann. South African Mus., vol. 6, pt. 3, p. 245, 1909 (Natal); Ann. Durban Mus., vol. 1, pt. 4, p. 390, May 21, 1917 (reference).

Depth 2 3/4 to 3; head 2 1/3 to 2 3/5 from snout tip
width 2 to 2 1/8. Snout 4 to 4 1/3 in head;
eye 3 1/10 to 3 2/5, greater than eye or
interorbital; maxillary reaches 2/3 to
3/4 in eye or opposite hind pupil edge,
expansion 2 to 2 1/5 in eye, length 2 in
head; bands of minute, villiform teeth
in jaws, on vomer and palatines;
interorbital 5 1/2 to 6, nearly level;
preopercle ridge entire, edge finely
and minutely serrate; preorbital entire.
Gill rakers 6 + 13, lanceolate, little
longer than gill filaments or 2 4/5 in
eye.

Scales 21 or 22 in lateral line to
caudal base and 4 or 5 more on latter,

— Oshima, Philippine Journ. Sci., vol. 26, No. 3, p. 357, March 1925 (Taihoku, Formosa).

dorsal, ochraceous, with 1½ parallel rather close set submarginal dusky lines, and last 3 or 4 rays with 1 oblique dark 3 or 4
lines. Anal uniform pale ochraceous

49313 to 49315 A.N.S.P. Melbourne, Australia. Mrs. Agnes F. Kenyon.
Length 1.72 to 2.08 inches.

— Fowler, Mem. Bishop Mus., vol. 10, p. 143, pl. 11a, 1928 (Tahiti; Honolulu; Shortland Island; Society Islands); vol. 11, no. 5, p. 326, 1931 (Honolulu); vol. 11, no. 6, p. 403, 1934 (Ontong Java).

— Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 562; Oct. 1927 (Natal). — Fowler, Mem. Bishop Mus., Marshall, Mem. Queensland Mus., vol. 9, p. 190, 1928.

— Fowler, Mem. Bishop Mus.;

— Weber and Beaufort, Fishes Indo Austral. Archip., vol. 6, p. 293, fig. 58, 1931 (Banda).

Elagatis bipinnulata Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 67, 1901 (reference). — Wakuya, Ann. Carnegie Mus., vol. 15, p. 233, pl. 37, fig. 2, 1924 (Kii; Ryukyu).

when mouth closed and inner lower row of small canines; interorbital 4 1/5 to 4 7/8, broadly convex; preopercle edge with short flexible points. Gill rakers 6 + 11, lanceolate, very slightly less than gill filaments, which 1 2/3 in eye.

Scales 50 or 51 in lateral line to caudal base and 21 to 30 more out over caudal fin; 78 scales counted close along above lateral line to caudal base; 10 or 11 scales above lateral line, 9 to 12 below, 45 predorsal forward to snout tip; 14 principal rows of scales across cheek; soft dorsal and anal broadly covered with fine scales basally and caudal largely finely scaled. Scales with 11 basal radiating striae; 31 or 32 apical denticles, with 8 transverse series of basal elements; circuli fine.

D. IX, I, 27, I to 29, I, third spine 2 1/5

Heniochichthys bipinnulatus

Bleeker, Nat. Tijds. Ned. Indie, vol. 6, p. 196, 1854 (Batavia); vol. 7, p. 38, 1854 (copied); Act. Soc. Sci. Ind. Neerl., vol. 1, no. 3, p. 9, 1856 (Macassar); vol. 2, no. 2, p. 5, 1857 (Amboina); vol. 6, no. 2, p. 4, 1859 (Doreh, New Guinea). —

— Günther, Cat. Fish. Brit. Mus., vol. 2, p. 468, 1860 (Amboyna). — Playfair, Fishes of Zanzibar, p. 62, 1866. — Gourn. Mus. Godeffroy, vol. 5, pt. 11, p. 136, pl. 90, fig. B, 1876 (Society Islands). — Peters, Monatsber. Akad. Wiss. Berlin, 1876 (1877), p. 836 (New Britain).

— Günther, Rep. Voy. Challenger, vol. 31, pt. 2, p. 8, pl. 1, figs. E-F, 1888 (1889) (

the Calcutta Museum is 42 inches. He notes the soft dorsal rays as 27 to 33, scales along above lateral line 115 and along below 75, 12 above transversely and 25 below transversely. He gives eyes 7 or 8, 2 in snout, 2 in interorbital. Maxillary reaches below last third or hind eye edge, though his figure shows it extending slightly beyond the eye. Upper jaw overlaps the lower, though [illegible] figure about even.

Seriola pinnulata Poey, Hem. Hist. Nat. Cuba, vol. 2, p. 233, 1860 (type locality, Havana).

Seriolichthys lineolatus Day, Proc. Zool. Soc. London, 1867, p. 559 (type locality, Madras).

preopercle denticulate.

Scales 1/20 along above lateral line, 110 along below; 15 above, about 30 below. D. IX, I, 8, I, second spine 2 4/5 in total head, first ray 2 4/5; A. II, 7, I, second spine 1, first ray 3 1/8; last depth of caudal peduncle 5; caudal 1 2/5, emarginate, ends broadly in median point behind; pectoral 1 4/5; ventral 1 3/4, first ray ends in short filament.

Above greenish gray, sides yellowish green, below ray white, everywhere more or less dusted with gray. Iris yellow. Fins yellowish, mostly dusky gray terminally. Length 299 mm. (Bleeker.

Malacca, Tenasserim, East Indies, China. Bleeker had but a single example and the above description is compiled from his figure and description.

Day says "The longest specimen in

Trex indicus Valenciennes, Compt. rend. Acad. Sci. Paris, vol. 54, p. 1205, June 1862 (type locality, Bourbon).

Neriolichthys indicus Sauvage, Hist. Madagascar, Poiss., p. 324, pl. 49, fig. 3, 1891 (type), p. 518 (reference).

Amia cavitensis Jordan and Veale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 16, fig. 5. Cavite.

Amia radcliffei Fowler, Proc. Acad. Nat. Sci. Phila., 1918, p. 25, fig. 4. Philippines; 1927, p. 274 (types).

Depth 4 4/5 to 5 1/6; head 4, width 2.
Snout 2 1/2 to 2 3/5 in head from
snout tip; eye 6 to 6 3/4, 2 3/5 in
snout, 2 1/3 in interorbital;
maxillary reaches 7/8 to eye,
expansion 1 1/4 to 1 1/2 in eye, length
3 in head from snout tip;
interorbital 2 7/8 to 3, broad,
elevated. Gill rakers 9 or 10 + 26
or 27, subequal with gill filaments,
which little shorter than eye.

Scales 105 to 110 in lateral
series to caudal base; 12 above.
Bases of anterior dorsal and anal
rays and caudal scaley.

D. VI — I, 24 +2, third spine 5 1/2
in total, head, first dorsal ray 2 3/5;
A. I, 16 + 2, first ray 3 2/3; least
depth of caudal peduncle 5;
pectoral 1 7/8; ventral 2; caudal 3 1/2
in rest of (rays 17, 16) of fish, forked.

Gray or brownish above, below whitish. Lateral line forms median dark streak along side of caudal peduncle. Iris brownish. dorsals and caudal dark like back. Anal whitish, last rays with grayish edge. Paired fins grayish, latter with white rays.

Red Sea, Zanzibar, Natal, Madagascar, Bourbon, India, Keeling Islands, East Indies, Philippines, Riu Kiu, Japan, Queensland, Melanesia, Polynesia, Hawaii.

8420. Cebu market. March 21, 1909. Length 600 mm.

A908, A910. Limbe Strait, Celebes, Dutch East Indies. November 10, 1909. Length 510 to 730 mm.

Depth 3 1/8 to 3 1/3; head 3 1/8 to 3 1/5, width 1 3/5 to 2. Snout 1 3/5 to 2 in head; eye 4 to 6 2/5, 2 1/5 to 4 in snout, 1 1/5 to 2 in interorbital; maxillary reaches 3/5 to 3/4 in snout, expansion 1 to 1 1/4 in eye, length 2 3/4 to 3 1/10 in head; barbels reach nearly to 2 scales before ventral in young, to ventral origin with age, length 1 1/4 to 1 1/3 in head; teeth 27 above, 20 below, short, conic, strong, uniserial, none on palate; interorbital 3 1/2 to 3 2/3, convex. Gill rakers 6+20, lanceolate, 1 3/4 in gill filaments, which 1/5 greater than eye.

Scales 27 or 28 in lateral line to caudal base and 2 or 3 more on latter; 3 above, 6 or 7 below, 13 or 14 predorsal forward nearly to nostrils; 3 rows below eye to lower preopercle edge.